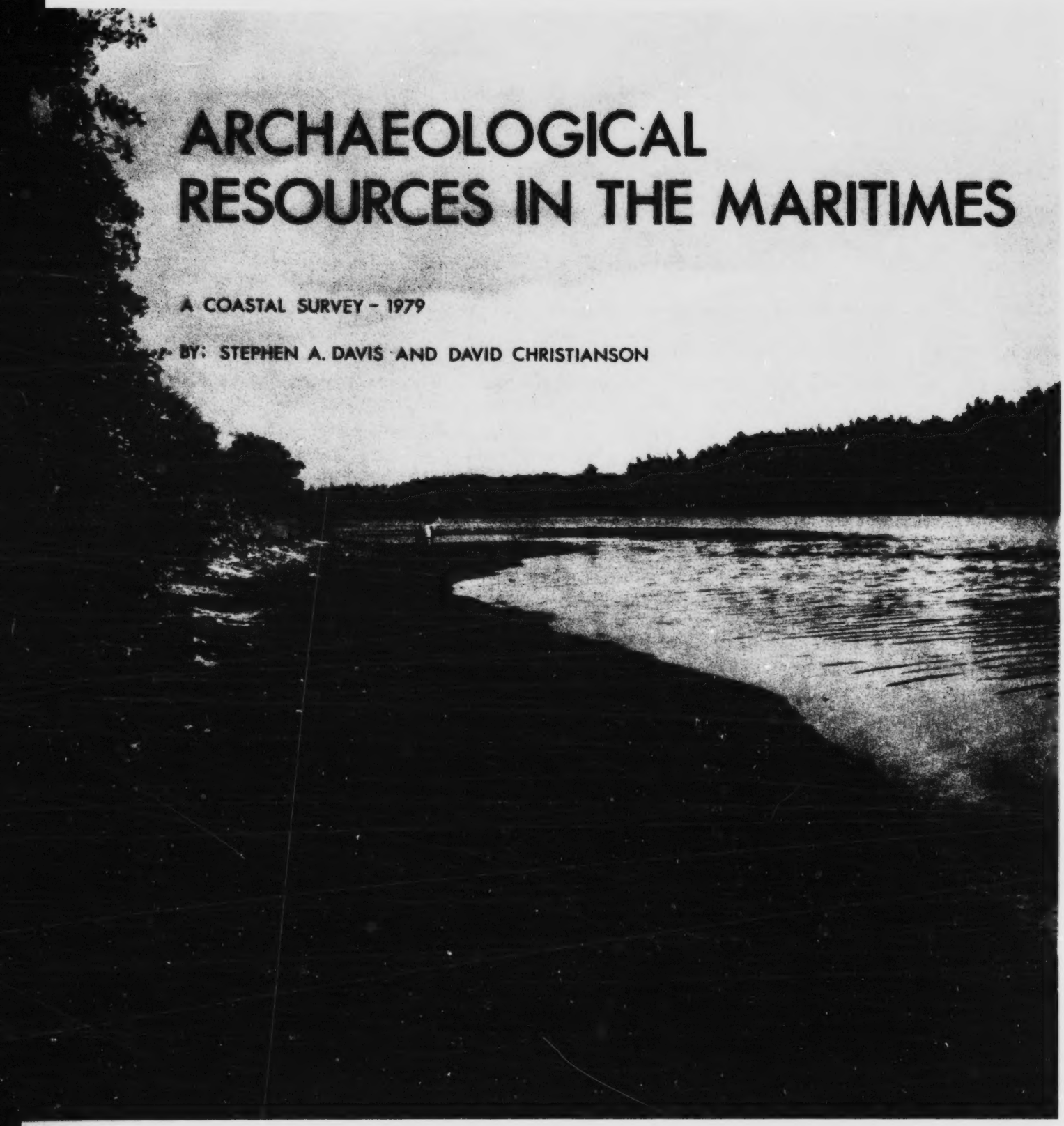
ARCHAEOLOGICAL RESOURCES IN THE MARITIMES

A COASTAL SURVEY - 1979

BY: STEPHEN A. DAVIS AND DAVID CHRISTIANSON



REPORT IN ARCHAEOLOGY NO. 4

CMP
the council of
maritime premiers

CPMM
le conseil des premiers
ministres des maritimes

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A COASTAL SURVEY

by: Stephen A. Davis and David Christianson

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The figures were drawn by Stephen Leonard.

INTRODUCTION

The following report represents the third report in a series that has concerned itself with the problem of shoreline erosion and its effect on the heritage resources in the Maritime Provinces (Prince Edward Island, Nova Scotia and New Brunswick). These reports have been prepared under the auspices of the Council of Maritime Premiers - Maritime Committee on Archaeological Cooperation (CMP-MCAC). The present work was jointly funded by CMP-MCAC and the National Museum of Man, Archaeology Survey of Canada.

The first two reports were directed towards the identification of the kinds of problems faced by the Maritimes and they provided guidelines on methodological and theoretical approaches towards the establishment of a resource management programme (Simonsen 1978, 1979). The present study attempted to identify these problems and apply the suggested methodologies in actual field situations, in addition to designing field recording formats. The importance of the first reports cannot be understated as they form the basis of the present project and a strong foundation to build a management program for Maritime archaeological resources. It is therefore prudent to summarize their contents as they relate to the present project and the state of archaeology within the area.

Summary of Reports 1 and 2

The most discouraging aspect of the reports is the knowledge that the Maritime Provinces have the potential of providing Canada with a great deal of information regarding its past history. However, when compared with other regions of the country, archaeological programmes have been slow in developing. A recent document prepared for the Council of Martime Premiers listed the problems within the area:

(1) There is little involvement by Maritime universities in teaching archaeology or in undertaking archaeological research programmes in the Maritimes setting.

(2) There is a wide disparity in the level of archaeological services offered by the three Maritime Provinces.

(3) There is little access to archaeological knowledge though the museums of the Maritimes.

(4) As a result of the above, there are few people involved in Maritime Archaeology.

(5) Relatively little is known about Maritime Archaeological heritage.

(6) There has been sporadic federal involvement, with the exception of Parks Canada's involvement with military sites, in the development of Maritime Archaeology.

(7) There is a poor appreciation of our archaeological heritage in the Maritimes by the public at large.

(8) As a combination of the lack of involvement and disparity in services there is no archaeological "infrastructure" in the Maritimes. (Turnbull, 1977).

The fact that these many problems relate to the present state of the discipline adds to the more immediate problem of coastal erosion. To various degrees the entire coastline of the Maritime Provinces are eroding at an alarming rate. The mechanics of coastal erosion are given in detail within Simonsen's reports (1978, 1979). He stated that:

> "the coastline of the Maritime provinces is presently submerging at an average rate of 15 centimeters per century but that there is considerable variation in this rate in localized areas and from south to north. Generally speaking, rates of submergence tend to be greater in the Bay of Fundy area (30 cm/century) than along the Atlantic and Gulf of St. Lawrence coasts (10-15 cm/century). It is also of interest to note that in the Bay of Fundy area, isostatic forces may not have been the major cause of submergence as appears to be the case elsewhere in the Maritimes. Rather, this area may have experienced a major eustatic rise in sea-level due to rapidly increasing tidal amplification after about 5,000 years B.P. due to the submergence of Georges Bank in the Gulf of Maine" (Amos 1977; summarized from Grant 1977).

The magnitude of this problem and the effects that it has on the archaeological resources of the Maritime Provinces can be illustrated by the following table:

Province	No. of Recorded Sites	% of Sites on Coast
Prince Edward Island	25	80%
New Brunswick	440	40%
Nova Scotia	350	60%

It should be pointed out that the "No. of Recorded Sites" represents data submitted to the National Inventory of Sites and that much of it is extremely inaccurate. This is especially true for Nova Scotia where many of the site locations are taken from published references from the early decades of this century. The author has attempted to relocate a number of these with disappointing results. In most cases sites did exist but have subsequently been destroyed. The principle agent causing the destruction - shoreline erosion. This effectively means that most areas of the Maritimes have to be resurveyed.

The addition of new sites to the existing Inventory is an apparent need in order to begin a complete management program. The potential for this is clear if one looks at the limited surveys conducted in the past decade. For example, a National Museum of Man sponsored project in 1970 produced 60 archaeological sites over a 200 kilometer distance on the North Shore of New Brunswick (Keenlyside 1976). Limited surveys have shown that the Maritime Provinces contain resources; unfortunately, they also report that many are being endangered by natural and cultural destructive agents.

THE 1979 SURVEY

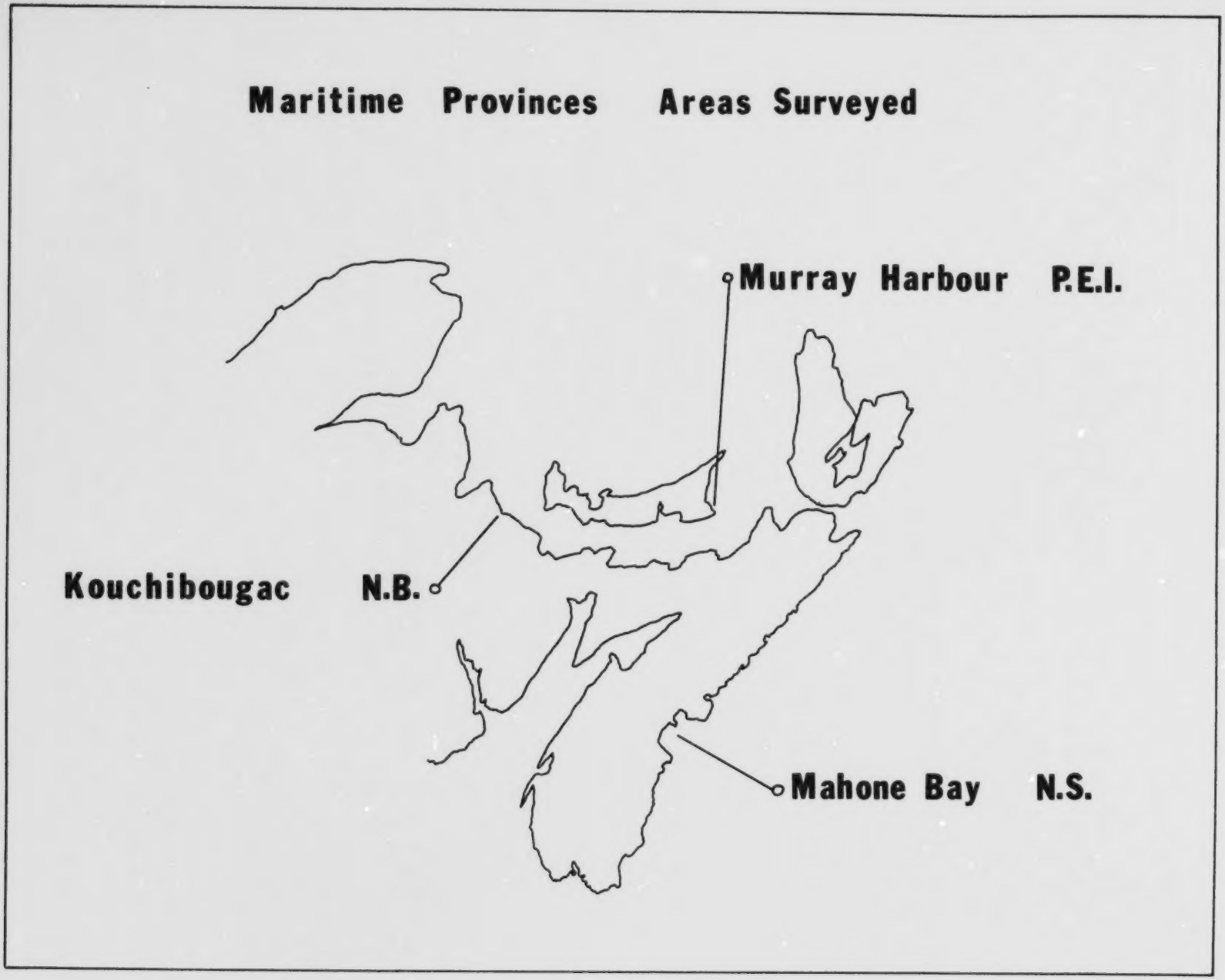
Simonsen's observations cannot be taken lightly as indeed the 1979 survey revealed that coastal erosion is taking a heavy toll of archaeological sites. This portion of the report will illustrate this fact by looking at each of the four areas investigated.

Passamaquoddy Bay, New Brunswick

The first three weeks of the project (29 May to 21 June) were directed towards the design and testing of site recording devices. The production of the forms entitled: "Maritime Archaeological Resource Inventory" (M.A.R.I.) constituted the first phase of the project. Examples of the Forms and the guidelines for their use are included in the Appendix of this report.

Upon completion of first drafts, the forms were tested on known sites in the area. These sites allowed revisions to be made in both the content of the forms and the organization of the information required on them. The assessment of the extent of erosion damage to these sites is unfortunately based upon observation. The project supervisor was involved on archaeological research teams in the area in 1970 and 1972. If memory serves, the past seven years have witnessed between one and two meters loss from the exposed cultural deposit at Holt's Point (BgDr-9), Teacher's Cove (BgDr-11) and the Minister's Island site (BgDs-10). The small tree in the foreground of Plate (1) was securely in the bank of the Minister's Island site in 1970. The dramatic effects of erosion in this area over the past decade are a result of continuous wave action and severe storms. The residents of the area stated that the infamous Groundhog Day storm of 1976 was responsible for much of the destruction.

Figure 1 Map of the Maritime Provinces showing three study areas


Maritime Provinces Areas Surveyed
Murray Harbour P.E.I.
Kouchibougac N.B.
Mahone Bay N.S.

The erosion process involves many variables acting singly or in conjunction. The Minister's Island site can be used as an example to illustrate what is happening to sites in Passamaquoddy Bay. It is clear that the increased tidal amplitude combined with seasonal high tides maintain an exposed erosional face free of vegetation. In locations where shell middens exist the matrix tends to be loosely consolidated and more prone to undercutting. The discarded shells are washed from the sites by the seasonal tides as well as by ground water perculating through the site and flowing towards the erosional edge. The removal of the shells results in the sites overburden slumping in large blocks which slide down the exposed face. These in turn are washed away at the next extreme high tide and the entire process begins again on the newly exposed deposits.

It is of interest to note that where the cultural deposit has been disturbed by potting or excavation, the process is accelerated. This was evident at many of the sites examined during the survey. Although the process is continuous, it can be slowed and controlled but not stopped.

The Department of Historical Resources Administration, Province of New Brunswick is experimenting with a gabion structure at the Minister's Island site (Plate 11). The wire cages filled with boulders are being erected along the front of the site with a fabric being used to stabilize the deposit behind the wall.

The gabions are one way of protecting sites for a term; however, man cannot entirely stop erosion, especially in areas where the tidal amplitude is increasing. In his second report Simonsen lists the following types of construction for controlling coastal erosion:

(a) sea-walls made of rip-rap, concrete, logs, metal, etc.;
(b) groynes to arrest alongshore drift of sediments;
(c) jetties;
(d) revetments placed parallel to shore;
(e) breakwaters.

Plate 1 Tree eroding from erosional face of Minister's Island site (BgDs-10)

Plate 11 Gabion structure erected in 1979 to protect the Minister's Island site (BgDs-10)

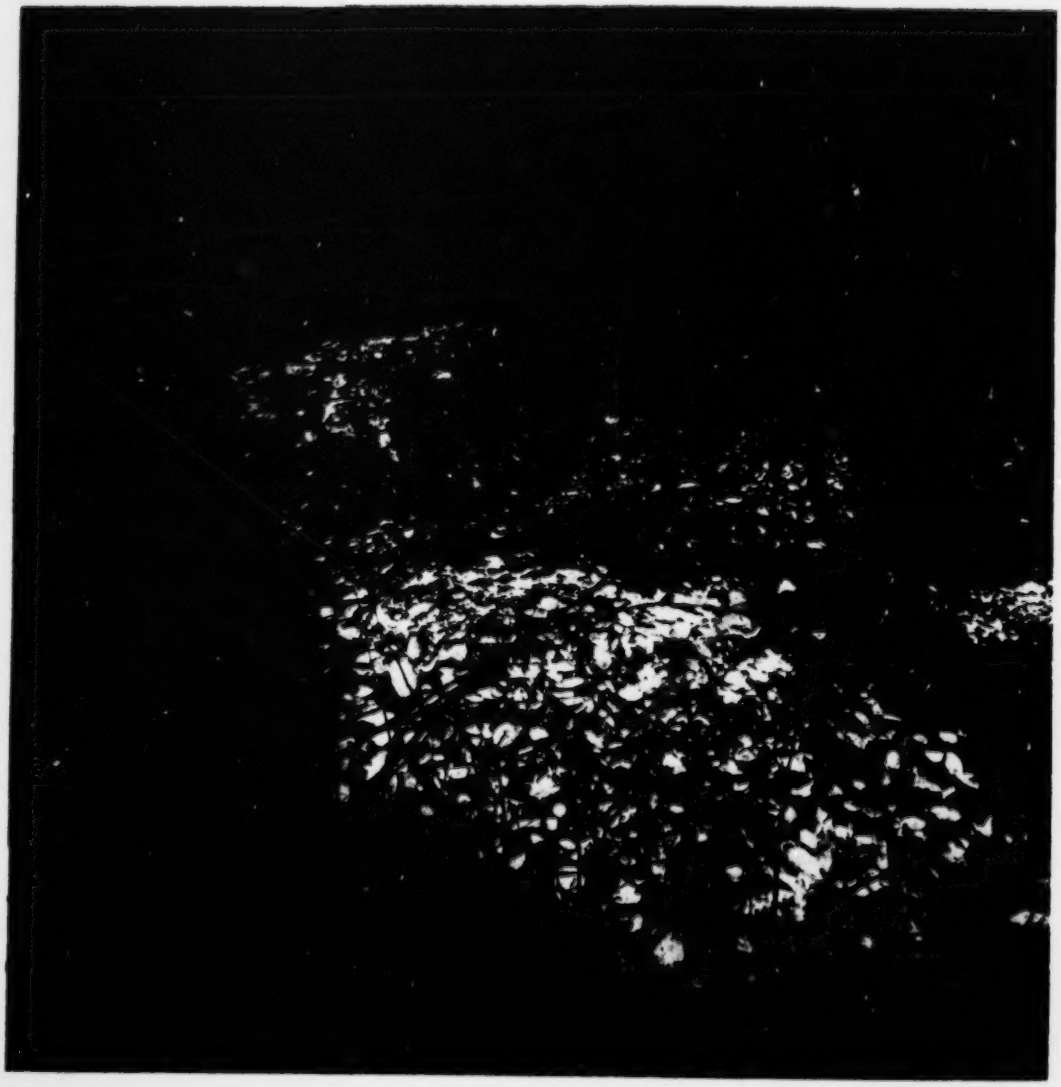
Many of the above works are relatively simple to construct but can be extremely costly if they are required to be extensive. Other, more exotic means of erosional control are the following;

(a) creation of new beach areas where beaches presently do not exist in order to absorb high wave action;
(b) promotion of certain types of vegetation in backshore zones to help bind unconsolidated sediments;
(c) promotion of sand dune accumulation;
(d) construction of submerged offshore breadwaters which act as reefs. (1979:17)

As has been pointed out, the cost of such control measures can be great. However, there exists a more immediate concern in that these measures may produce adverse effects upon adjacent coastal features. Many examples of this can be seen along the Maritime coast where causeways, jetties, wharfs, etc. have interrupted the "along shore" movement of sediments resulting in limited stabilization in one area and increased erosion in others. The bathhouse at Minister's Island is an example of this process. When this structure was built, a rock wall was installed along the front of the bathhouse. This has, to a certain degree, slowed the erosion in this area. However, where the wall ends, the erosion has been accelerated so that it will eventually circle the bathhouse leaving it detached from the shoreline.

Although the majority of sites within Passamaquoddy Bay are eroding, one appears to be relatively unaffected. The Pagan Point site situated by the Saint Andrews town dump has with one minor exception remained relatively intact. The reasons for this situation are complex in that they involve numerous natural features as well as man-made alterations. The former includes the presence of Navy Island to the southeast which deflects storm waves coming from that direction and a number of spit formations extending out from the site which have low gradients that absorb wave energy before striking the site. The site itself is relatively low, being bounded by a swamp on the south side

Plate 111 Potting activities at the Pagan Point Site



which has contributed to the growth of marsh grasses, hawthorn and rose bushes, all of which bound the surface of the site with dense root systems.

In recent times, the construction of a road to the south of the site also absorbs and deflects waves. The town dump has added a large amount of fill to the west of the site causing the previously mentioned swamp to migrate closer to the site.

The only erosional damage occurs on the unprotected northeast side of the site. This area is characterized by a small elongated drumlin which is being undercut by waves which in turn have caused numerous treefalls that take sections of the cultural deposits with them. The most threatening agent to the future of the site is the activities of "pot hunters" (Plate 111). This threat may soon be alleviated as application has been made to have it declared a protected provincial historic site.

The principle aim of the time spent in the Saint Andrews area was not directed at locating new sites. However, it was decided to test the survey distance of 3 kilometres per day as proposed by Simonsen (1978:31) in formulating his "work units" for each survey area. The test area was the shoreline of Minister's Island extending from the bathhouse along the east side ending at the gravel bar, a distance of approximately 4 kilometres. The distance was covered easily in a day; however, it was not possible to record the various archaeological resources during this time. The number of sites encountered was somewhat surprising as the Island had previously been surveyed. The most recent in 1970 had been conducted from a boat; this survey identified two prehistoric sites, both of which were recorded a decade earlier (Pearson 1970). This years test revealed two new prehistoric sites plus four "baiter's mounds". The conclusion that can be drawn from this is that the shoreline has to be walked. A crew in a boat, no matter how close to the shore, is bound to miss certain types of archaeological resources. Admittedly, one of the

prehistoric sites was almost completely destroyed by erosion. However, the second site was nearly unaffected by any forms of cultural disturbance, minor exceptions being a carriage road across one end of the site and tree falls on the western edge. The "Hawk's Nest" is an unusual coastal archaeological resource in that it is located five meters inland from the beach and is presently safe from erosion. The location of the site may mean that others are also situated in Passamaquoddy Bay under similar circumstances.

The protected conditions of both "Hawk's Nest" and "Pagan Point" requires that future survey teams become familiar with shoreline morphology. It is recommended that as part of survey logistics, marine charts and orthophotographic maps be utilized in the identification of high probability areas within search zones.

Another problem identified from the Minister's Island survey which needs to be dealt with for the entire region is the weakness of site locational data that is currently predominant for the archaeological resources of the Maritimes. The two previous surveys identified the presence of a badly eroded site (BgDs-7) to the north of the bar that connects the Island to the mainland at low tide. The limited locational information could not be used to positively identify the location of this site. The importance of such data cannot be understated for a diminishing resource. For this reason the M.A.R.I. Form 2 stresses a series of locational data including measured access to the site from a prominent reference point. The mechanics of obtaining access location vary from using car odometers to stretching a survey chain. Pedometers were given consideration but were found to be too broad in the range they offered.

Summary

The Passamaquoddy Bay archaeological resources continue to be severely damaged by erosional forces to the extent that protective measures are warranted. A limited survey produced previously unrecorded sites which may be an indication that the area's resources are not fully documented. It is recommended that all the recorded sites be revisited to assess damage to them and that high potential areas be resurveyed to check for unrecorded resources.

Murray River, Prince Edward Island

The second phase of the project was initiated in a field survey of Murray River, Prince Edward Island (Figure 1). This area was defined by Simonsen as:

Province	Sample Number	Description of Sample Unit	Distance (km)	Time Unit-Day
Prince Edward Island	PEI-4	Murray Harbour Area including related islands and exposed shorelines commencing at Cody Point in the north and continuing southerly to Cape Bear.	35	12

(1978:31)

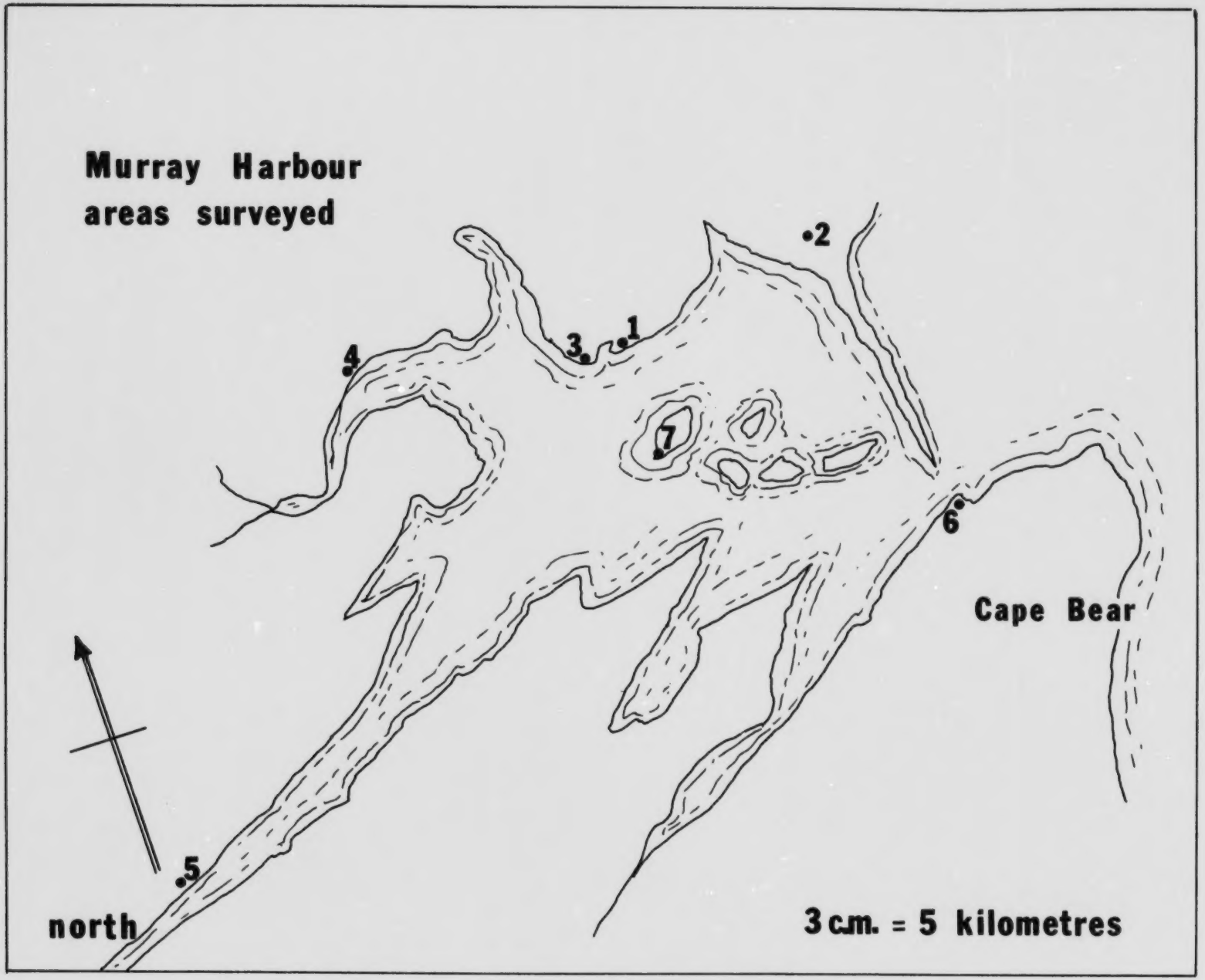
The sampling design formulated by Simonsen was dictated by consideration of three variables taken from CMP-MCAC Terms of Reference. They were as follows:

(1) geological processes - areas with high rates of erosion, the effects of local topography, etc.;

(2) differing patterns of cultural use of the coast - areas of higher potential for use and areas preferred by different patterns of cultural exploitation;

(3) the amount of fieldwork undertaken previously in the three jurisdictions - e.g. some in New Brunswick, little in Nova Scotia and (virtually) none in Prince Edward Island . (1978:29).

Figure 2 Sites in Murray Harbour


Murray Harbour
areas surveyed
1
2
3
4
5
6
7
Cape Bear
north
3 c.m. = 5 kilometres

The introduction of these non-random biases along with the inadequate information on shoreline geomorphology dictated the use of judgemental strategy in the formation of the sampling units (Ibid:30).

The Terms of Reference for the present study listed the sample unit as follows:

(1) P.E.I. - P.E.I. #4 (estimate 12 unit days/35 km) Murray River, (80% to be covered)

There were no guidelines provided as to which areas to be included within the 80% of the total. Therefore, the survey team adopted a judgemental strategy based principally on the first variable of Simonsen's Terms. The other two variables could not be used because of the limited nature of the archaeological resource base for Prince Edward Island.

Within the sample unit a total of seven archaeological resource sites were recorded (Figure 2). A further resource site was visited an notes made; however, the site was located outside of the defined limits of the survey. The following site descriptions have been given a designation which is a temporary assignment used in field situations. This procedure is intended to reduce the errors caused by assigning Borden designations in the field; however, once the Provincial Authority has received the documentation and consulted the National Inventory of Sites, a Borden designation is applied to each resource location (See number 1 in Instructions to Form 2 in the Appendix).

Site No. T 79 PEI 1-1

This prehistoric site is located on the north side of Murray Harbour on the first farm east of the Centennial Camp ground. The cultural matrix is sparse due to extreme erosion which has also created a steep bank which forms the front of the site. Pockets of oyster shells with some fragments of soft shell clam are filtering from this

Plate IV Prehistoric shell midden almost completely destroyed by erosion. Murray Harbour, P.E.I.

exposed bank (Plate: IV). One of these spill areas is clearly a shallow basin shaped pit containing oyster shells, cord-marked-shell tempered pottery and burnt bone. The future of this site is clear; judging by past damage the site will disappear after the next storm.

Site No. T 79 PEI 1-2

The site is located on the north side of Murray Harbour northwest of Poverty Point 0.5 kilometers inland from two mobile homes. The resource can best be described as an isolated find. A Kaolin pipe stem fragment and flake (fragment of gun flint ?) were located on a road track leading to the mobile homes. The road is bounded by cultivated fields of hay; future sub-surface testing in the fields is recommended.

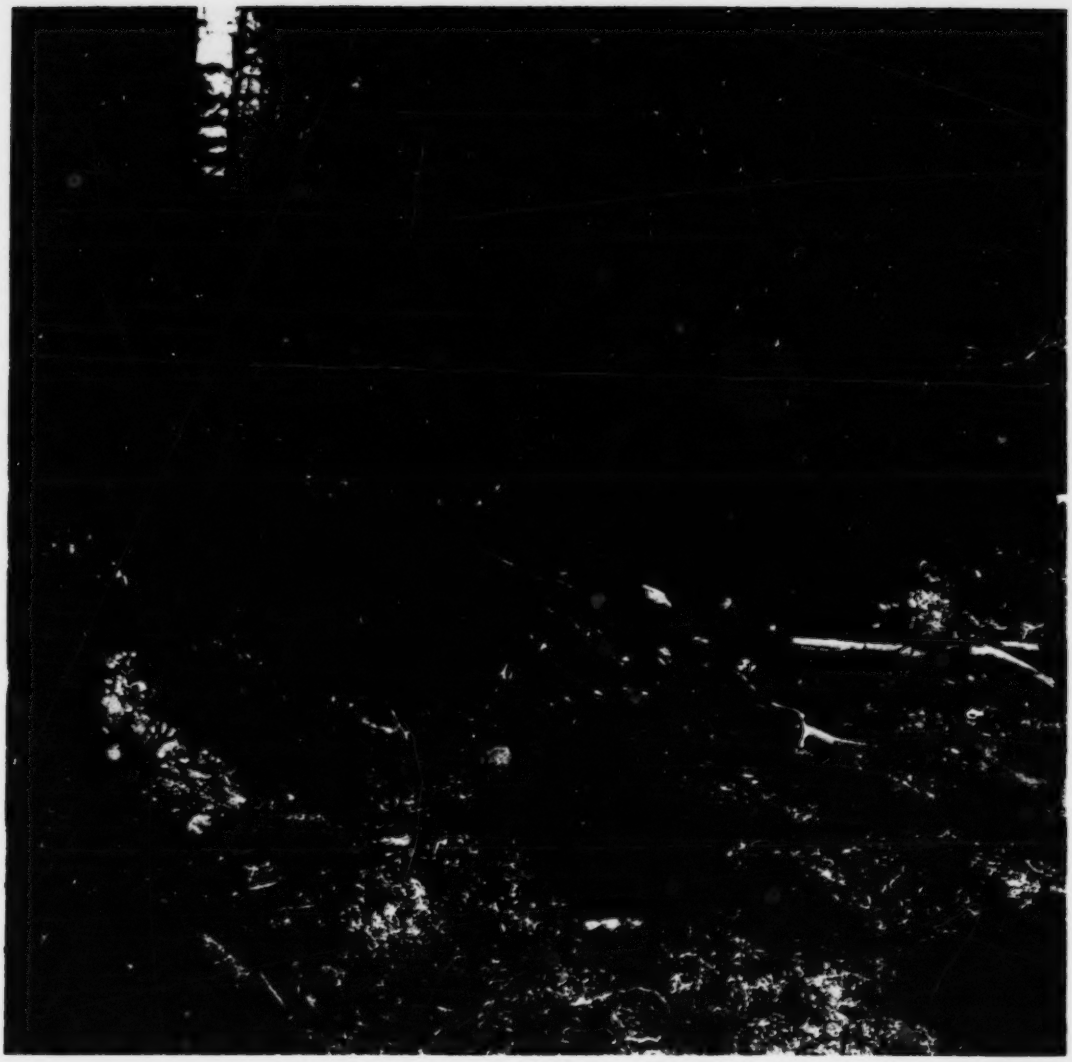
Site No. T 79 PEI 1-3

This site is located on the east side of Indian Point at the Centennial Camp ground situated on the north shore of Murray Harbour. The cultural matrix is characterized by soft shell clam exposed to a length of eleven meters (Plate V). The extent of the site inland was not ascertained as it was felt that attention should not be drawn to the location. However, the presence of an isolated pocket of shells on the west side of the Point suggests that the matrix may be scattered over the entire area. This prehistoric site is the only one within the sample unit which is recommended for future testing and evaluation.

Site No. T 79 PEI 1-4

The site is situated on the north shore of the Fox River near the erosional face on lot Number 254011. The resource consists of what appears to be an excavated cellar. However, no foundation stones were visible nor were any artifacts recorded. There is no apparent threat to the immediate future of this site.

Plate V Prehistoric shell midden being eroded. Tree root illustrates how much erosion has taken place recently.



Site No. T 79 PEI 1-5

The site is located 168 meters northeast of the Glad Tidings Church within the community of Murray River. The location contains two types of archaeological resources. One is a shell midden; the other is the remains of an historic wharf. The relationship of these is unclear, the midden may be the remains of an historic commercial enterprise. Limited testing of this resource failed to produce any objects or other evidence to provide a relative age assessment. The midden portion of the site has not been affected by marine erosion, the only disturbance had resulted from a road cut through the lower portion of the site. The wharf is only visible at low tide and is considerably covered by silt.

Site No. T 79 PEI 1-6

The resource is located over the penninsula known as Old Store Point. It represents the location of the earliest commercial enterprise in the area. At one time the Point contained a wharf, cannery, store, houses, ice houses, and a large private residence which originally was intended as a hotel but never used as such. The surface of the site is presently covered by the remains of fish shacks which were destroyed in high winds approximately fifteen years ago. The ice house depressions are visible among the sand dunes (Plate VI). The future of the site is unclear, marine erosion is not an immediate threat as a modern lighthouse on the site has been protected by a wood and rock cribbing which has slowed the erosion of the overall site. However, recent vehicle traffic over the dunes is causing the vegetation to be altered, resulting in dissipation of the dune formations.

Site No. T 79 PEI 1-7

A prehistoric oyster midden is located at the extreme south-west end of Reynolds Island on the east side of a small peninsula. The

Plate VI Old Store Point, Murray Harbour, P.E.I., dark vegetation outlines remains of historic settlement.

cultural matrix is represented by a thin, heavily compressed oyster midden. Mr. Gordon Beck reported the location of the site to the survey team. He has collected a number of ground stone celts from the site; the survey team identified lithic debitage on the beach in front of the site. The vegetation on the site indicates that it is undergoing submergence in that it is taking on salt marsh characteristics. A shovel test, three meters from the beach, produced water at a depth of fifteen centimeters. The apparent submergence along with the associated erosion have and will continue to diminish the value of this site.

The eighth resource site was visited as it offered dramatic proof of a different form of erosion not seen within the relatively protected harbour of Murray River. The Bear Cove lighthouse (Figure 3) has been actively in use through the nineteenth and twentieth centuries. In 1889, a new well was excavated behind the lighthouse at a distance of approximately one hundred meters from the eroding shorefront. This same well is now profiled in the eroding bank, providing proof of an erosion rate of better than one meter per year (Plate VII). Unfortunately, the rate is not constant; therefore it is unpredictable. Mr. Jack MacNeil, a lifetime resident of the area, informed the survey team that severe storms cause extensive damage to this unprotected headland. The future of this area is bleak in terms of loss of land to marine erosion. The entire headland has recently been cleared of its vegetation, which can only result in accelerated loss.

The erosional pattern within the confines of Murray River is exceedingly complex. The harbour has numerous variables dictating whether the shoreline will undergo erosion or deposition. The depositional cycle is in many places affected by man-made structures. An example of this is the cannery and wharf at Irving's Point. The location of the wharf is such that it absorbs and deflects wave action moving into the harbour. This has retarded the erosion on the west side of the wharf where formerly exposed erosional faces are becoming

Figure 3 Comparison of Cape Bear lighthouse survey plots 1882 and 1977

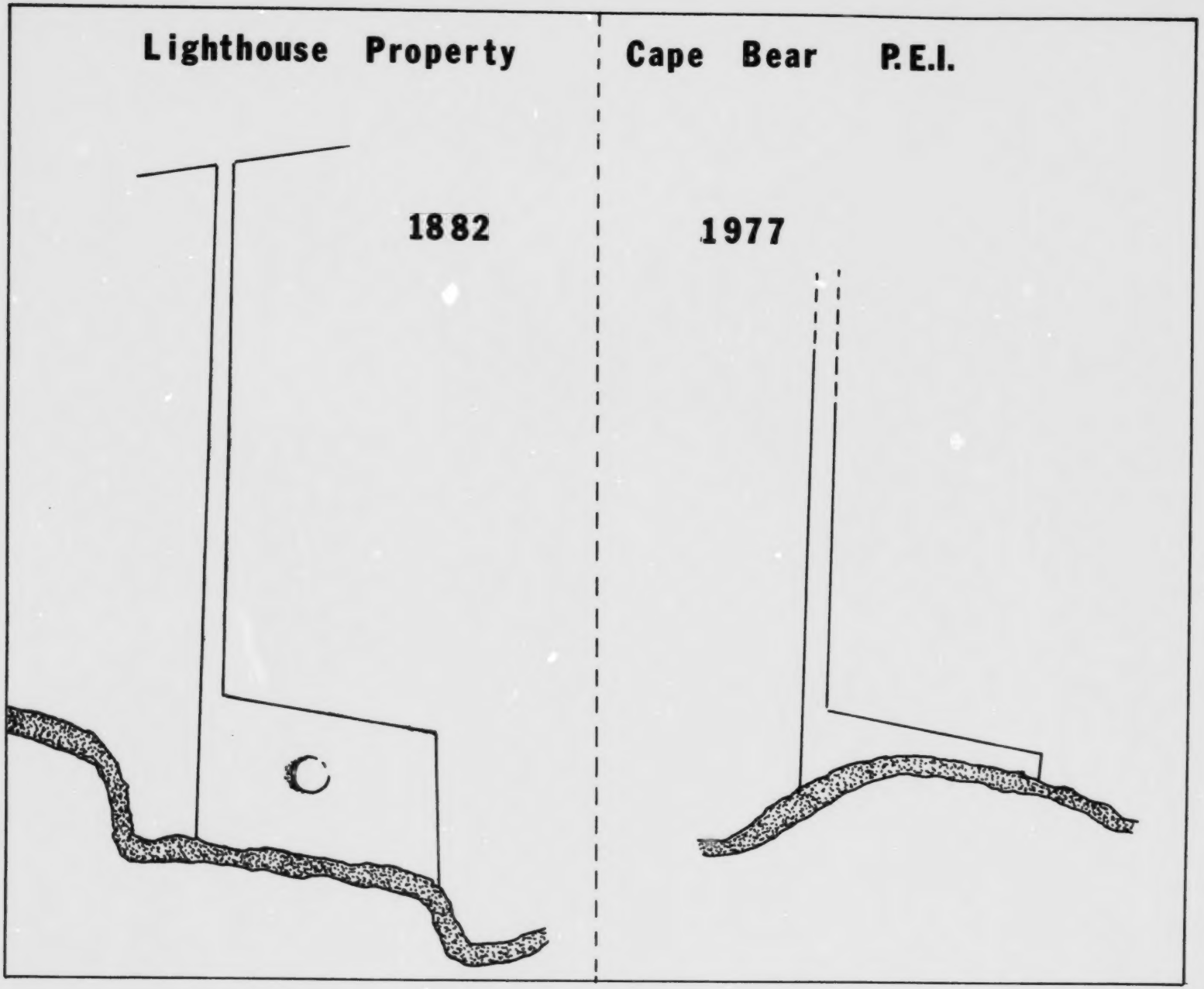

Lighthouse Property
Cape Bear P.E.I.
1882
1977

Plate Vll The Cape Bear light, P.E.I. with well eroding from bank

covered with vegetation. However, it has had the reverse effect on the east side of the wharf. The waves, according to Jack MacNeil, have taken away between fifty to seventy five meters of land from this area in the past thirty years. His assessment is based upon his neighbour's house, which at one time had a large vegetable garden between the house and shore. The north corner of the house is now approximately half a meter from the eroding shore (Plate VIII). Again we have an indication of the erosion rate being in excess of one meter per year.

The large volume of sand and silts being carried into the harbour are also obstructing archaeological resources. The small site (79 PEI 1-7) on Reynolds Island is undergoing what appears to be submergence and at the same time it is being capped by sand. The movement of sand has been causing the local fishermen some concern as the harbours access channels have begun to migrate. The cause has been identified as a break in a large sand bar across most of the entrance to the harbour. The break has created new channels and filled others. In fact, since this occurred, a new island has developed just south of Jack Gordon's Island. Man's inability to check erosion is again illustrated by this feature. The fishermen appealed to the provincial government for aid in blocking the new channel. A futile attempt was made by filling the gap with junked automobiles. The result was negative, and now the rusted parts of these vehicles can be seen along the beaches in the area of the break.

Summary

The archaeological resources within Murray Harbour are clearly in need of immediate attention. Of the three prehistoric encampments, one is beyond salvage (79 PEI 1-1), a second would present numerous difficulties due to its water logged condition (79 PEI 1-7) and the third is undergoing constant erosion (79 PEI 1-3). It is recommended

Plate VIII Erosion will soon topple this house located within Murray Harbour, P.E.I.

that the latter be tested to determine its composition and to evaluate its potential for contributing to an understanding of the Island's prehistory.

The historic resources appear to be relatively secure from natural destructive agents, the one exception being the Bear Cove lighthouse. However, this site for all intensive purposes has been destroyed.

The survey team would further recommend that the area have a more intensive inventory conducted. The 1979 project was not able to give the sample unit a thorough investigation due to time restraints. The major rivers and streams leading into the harbour should be checked. This is particularly true for the Mink River, which presently has a large population of oysters. The use of this resource by the aboriginal population may mean that other prehistoric middens exist along the Mink.

The historic resources of the area also need more attention. One particularly interesting possibility is a small community located somewhere near Indian Point (known locally as French Marsh). The community is illustrated on a map dated 1762 that is in the Provincial Archives. The map shows five structures while the legend identifies the presence of seven. The settlement was not included in the census taken in 1753. This area is now a privately owned camp ground. The property belongs to the Johnston family who keep a small display of historic items from the area in the campground canteen. Included in this display is a cannon ball which came from a field behind French Marsh. A second cannon ball was reported; however, its location is unknown. Mr. James Clow, the original owner of the land, reported finding a human skeleton eroding from the bank just below the canteen. The skull was kept for many years within the family but it was apparently destroyed some years ago.

The folklore of the area, as told by Mr. Clow, states that the community was established by Acadians fleeing from the explusion edict issued by the English. The settlement was relatively secure until an English ship taking refuge from a storm discovered the community. The ship fired on the settlement, forcing the inhabitants to flee in small boats up the Mink River. A romantic side of the take is that the people placed their valuables into a cannon, sealed the mouth and jettisoned it overboard.

This is but one example of the historic resources to be found around Murray River. The obvious damage being done to these sites is highly suggestive of greater destruction of others along the Prince Edward Island coast. These must be identified if the prehistory and history of the Island are going to be fully written.

Mahone Bay, Nova Scotia

The second sampling unit to be investigated by the survey team was defined by Simonsen as follows:

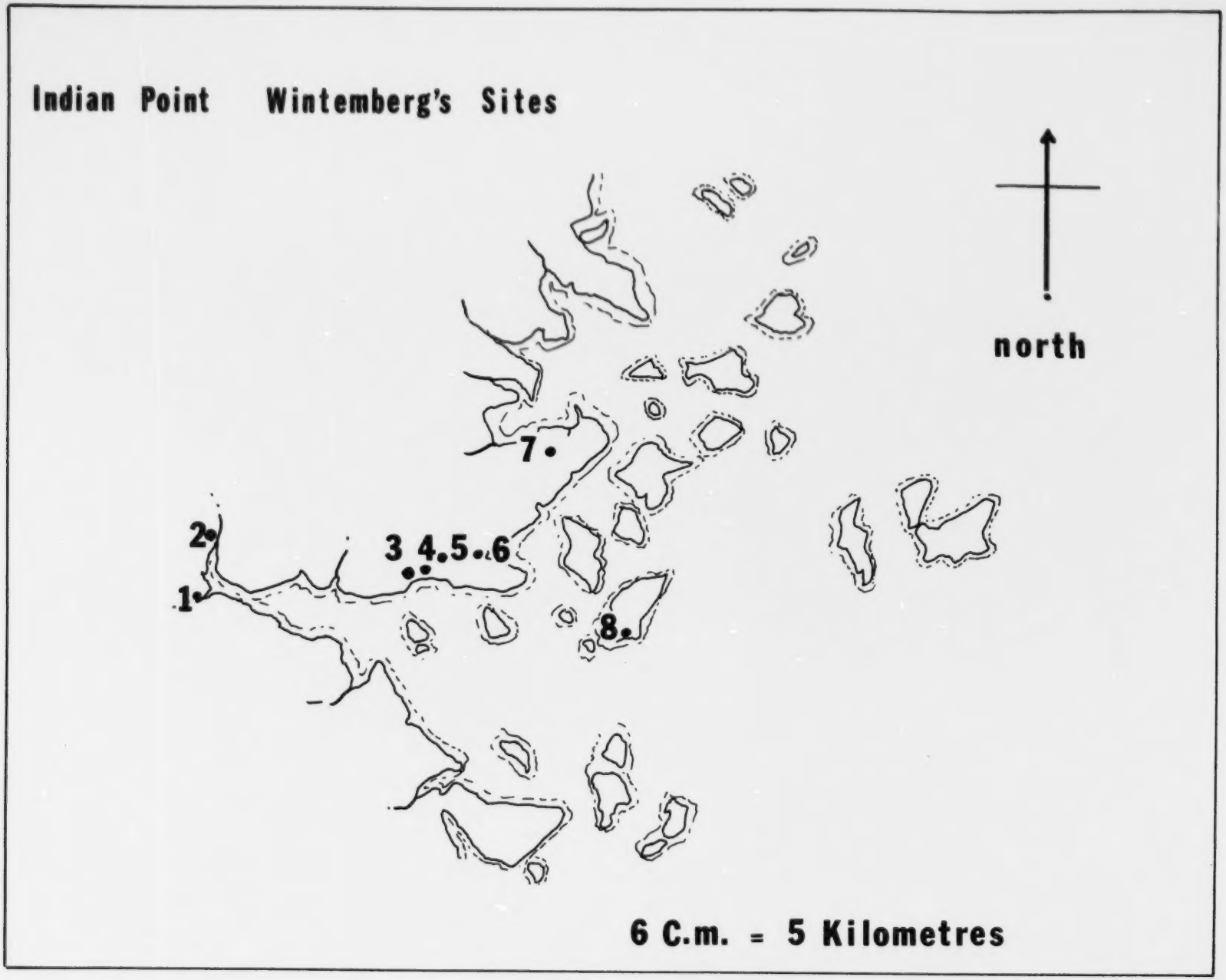
Province	Number	Description of Sample Unit	Distance (km)	Time Unit-Day
Nova Scotia	N.S.,-6	On the south shore (Atlantic Ocean) of Nova Scotia, within Mahone Bay, commencing at Martin's Point in the south and proceeding easterly to New Harbour Point and including all islands lying within Mahone Bay northward of a line drawn from New Harbour Point to Indian Point.	60	20

(1978:33)

The contract "Terms of Reference" for the 1979 project listed the units as:

ii N.S. - N.S. #6 (estimate 20 unit-days/60 km) Mahone Bay; and includes the area of Wintemberg's Eisenhauer shell heap report (1973); mainland to off shore islands; (50% of area) 2 wks.

Figure 4 Sites listed by Wintemberg


Indian Point Wintemberg's Sites
north
1
2
3
4
5
6
7
8
6 C.m. = 5 Kilometres

The work done by Wintemberg was on Indian Point which is outside Simonsen's sample unit, it was included to gauge the effect of erosion over the years since the work. It was decided to begin the survey within the boundaries established by Simonsen as this area had only one known archaeological resource. This proved to be a judgemental error, in that, the recorded site could not be relocated and only one other was recorded.

The previously recorded site is listed with the National Inventory of sites as BdDb-1. The listing was derived from unpublished information provided by the Nova Scotia Museum. Their sources were notes written by Harland Smith in 1914 and collections made on the site as early as 1904. The precise location of the site is known; however, nothing remains of it today. It is believed that it was destroyed by three successive bridges built on the location during the past sixty-five years.

Site No. T 79 NS 1-1

The new resource recorded is somewhat of a mystery in that its function is unknown. It is represented by three circular depressions with no associated cultural deposition. The site is located on the east side of Chester Basin directly across from an unnamed island.

The disappointing lack of archaeological resources within the sample unit can be useful in delineation of future units. It is clear that such units can not be defined solely upon the basis of physiographic features taken from topographic maps. If surveys are to be conducted in similar areas, it is recommended that detailed geological reports be consulted. The problem with the northeast end of Mahone Bay is that is features a steep, boulder strewn shore-

line. A second difficulty is that very little research has been done to determine differing patterns of cultural use of the coast. Inhospitable coastlines may have served as special function locales which have yet to be recognized as archaeological resources. The other conclusion and more probable is simply that cultural preference and/or limited resources precluded the use of such environments.

The second half of the Nova Scotia assignement was the relocation of the sites recorded by W. J. Wintemberg (1973). The following is his list and the descriptive location for the sites (Figure 4):

SHELL-HEAPS IN THE VICINITY

Besides the Eisenhauer heep there are several other shell-heaps on Mahone Bay and Harbour.

(1) In a yard north of the Presbyterian church, in the village of Mahone Bay.
(2) On the west bank of Mushamush river, on the farm on John Keddy.
(3) A small, shallow heap in William Hyson's woods, a few hundred yeards west of the Eisenhauer heap.
(4) The Eisenhauer shell-heap.
(5) A small heap on the Weinacht farm.
(6) A deep heap on the shore of Weinachte cove.
(7) On property owned by C.P. Thomas, about half a mile north of the village of Indian Point.
(8) On the southeast side of Steves or Rouse Island.

(Ibid:111)

Of these eight resource locations listed, the survey team was only able to locate physical evidence for the Weinacht Cove site (No. 6).

The first site location listed by Wintemberg is believed to be the present location of an asphalt parking lot for the Presbyterian Church (Plate IX). The second could not be located even though the farm of John Keddy was ascertained. A private residence has been built on the West bank of the Mushamush river and the access road to this home may have destroyed this site. The third site is in an area of heavy alder growth, shovel testing failed to produce positive evidence.

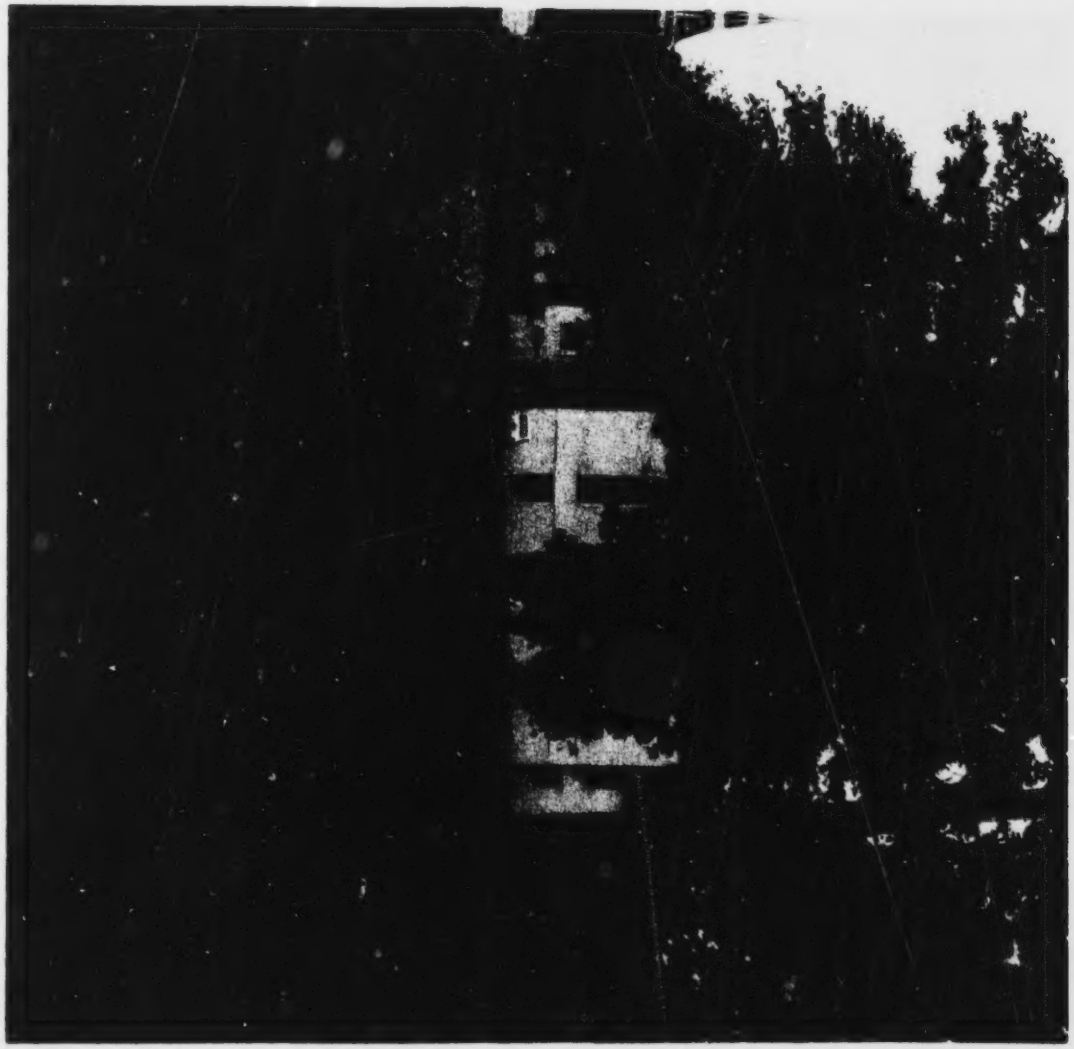
The Eisenhauer shell-heap could not be located which is not surprising, considering that "It was entirely excavated" (Wintemberg 1973:111). Wintemberg's site photographs also show that a single track road truncated the site (Ibid:173). This road is now a two lane asphalt highway with many modern houses built along the roadway. This may also account for the loss of his site number five. As mentioned, the Weinacht Cove site was located; it is described later as 79 NS 1-3. No evidence at all could be found for his number seven. The final site listed as being on the southeast side of Rouse Island is believed to be the present location of a number of summer cottages.

Although the majority of the archaeological resources of this area have been destroyed, the survey did record the existence of three new locations.

Site No. T. 79 NS 1-2

A previously unrecorded shell-heap was noted on the north shore of Hirtle Cove immediately northwest of the intersection of the paved road and the Hirtle Hill gravel road. The property is owned by Mr. Theodore Bayer whose house is on a hill above the site. Unfortunately the value of this site has been greatly diminished by landscaping and the activities of amateurs. A small collection of artifacts from the site was donated by Mr. Bayers to the Nova Scotia Museum.

Plate 1X Wintemberg's site 1 is now a parking lot



Site No. T. 79 NS 1-3

This is Wintemberg's site 6, Weinacht Cove (the present spelling is Whynacht's Cove). This site has also been seriously damaged by amateur excavations, marine erosion, construction of a road and recent potting activities (Plate X).

Site No. T. 79 NS 1-4

This site is characterized by an interesting historic structure which was used as a lime kiln (Plate XI). The bee-hive shaped structure is located on the southwestern shore of Whynacht's Cove halfway from the paved road to Andrew's Point. There is no immediate threat to this resource.

Summary

The state of archaeological resources in this area of Nova Scotia is rather bleak. Of the nine previously recorded prehistoric sites, only one could be located; the others are believed to have been destroyed by various cultural activities. The remaining site and a newly recorded site have also been damaged to such an extent that their scientific value is suspect.

The state of these resources again illustrates the need for an updated review of all archaeological resources within the province of Nova Scotia. These sites are still listed on the National Inventory of sites (N.I.S.) as viable resources. This area clearly shows the limitations of the N.I.S. as a mangement tool without periodic review of the state of the resource.

Plate X Wintemberg's site 6 damaged by erosion, road construction and potting

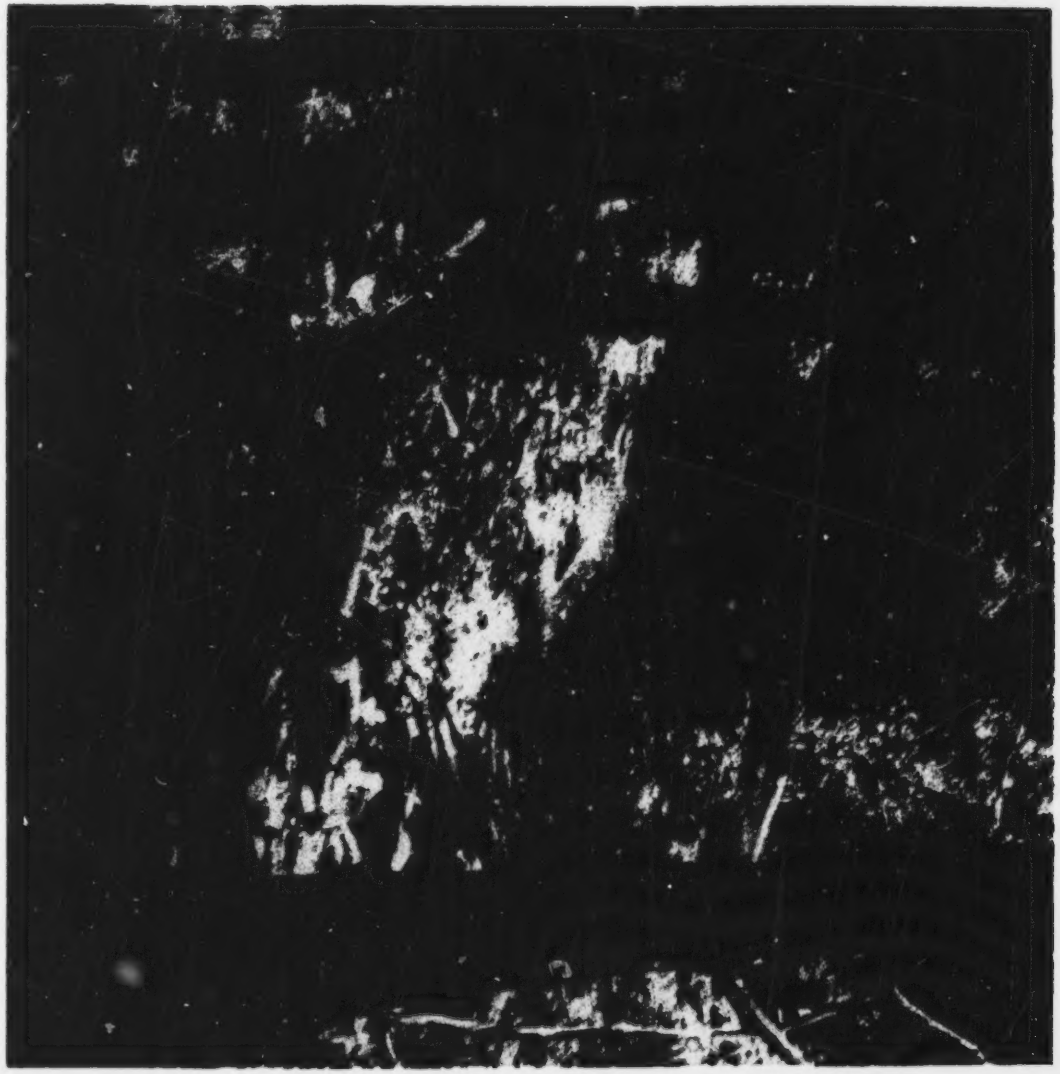
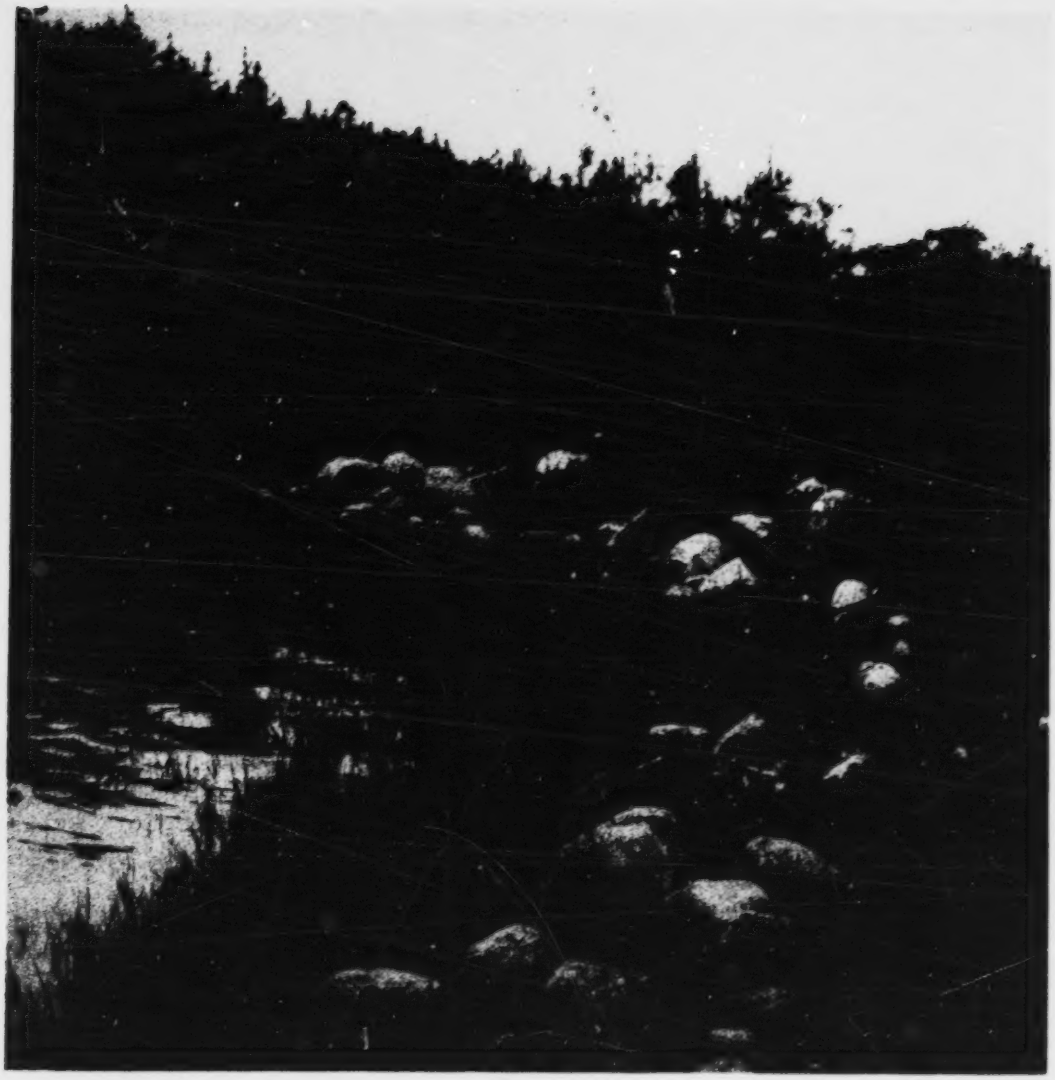


Plate X1 Historic lime kiln at Whynacht's Cove, N.S.



Kouchibouguac, New Brunswick

The sampling unit proposed by Simonsen for New Brunswick was defined as:

Province	Number	Description of Sample Unit	Distance (km)	Time Unit-Day
New Brunswick	N.B.-3	On the Northumberland Strait shore of New Brunswick, commencing at Rexton on the south shore of Richibucto Harbour and then proceeding southward to Cap de Caissie at the north-western approach to Shediac Bay.	125	42

(1978:34)

The 1979 project "Terms of Reference" established the sample unit as:

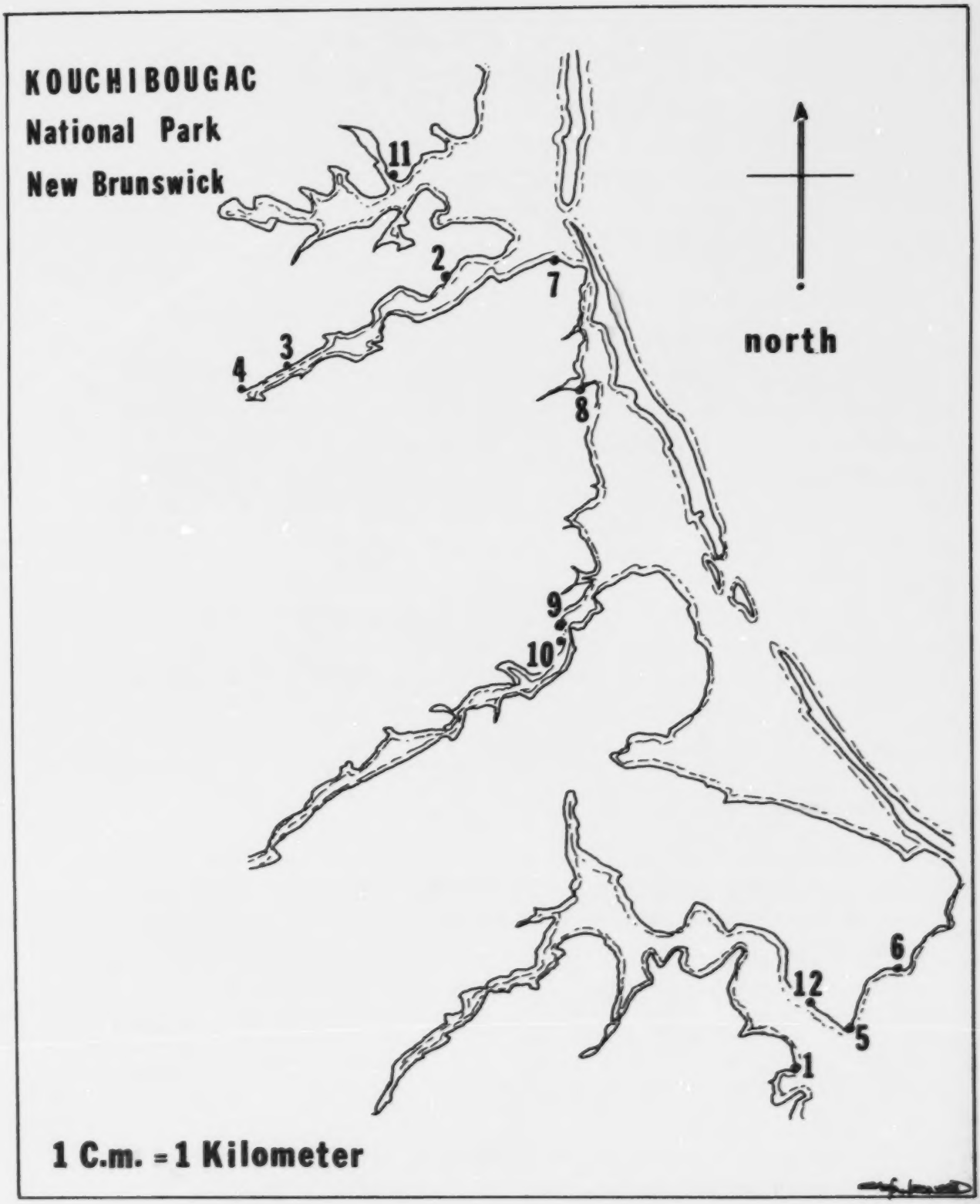
iii N.B. - N.B. #3 Richibucto (estimate 42 unit-days/125 km)
includes National Park, area previously surveyed by Lavoie 1971; (25% of area) 2 wks.

The National Park extends northward from Rexton and does not coincide with Simonsen's unit. It was decided that the time could be best spent on relocating the sites recorded by Lavoie (1972) within the confines of the park. This decision was made as it offered the first opportunity to test the M.A.R.I. site recording format in an area where numerous sites were known to exist. This known resource base would also be useful in assessing the degree of resource loss due to erosional features over a period of eight years. Lavoie identified twenty-four archaeological sites. The present survey recorded half this number (Figure 5).

Site No. T 79 NB 2-1

This site is located just outside of the Park boundaries on the southeast portion of McGuire's Point. The site is characterized by

Figure 5 Sites in Kouchibouguac National Park


KOUCHIBOUGAC
National Park
New Brunswick
north
11
2
7
3
4
8
9
10
6
12
5
1
1 C.m. = 1 Kilometer

a surface scatter of European and aboriginal artifacts. A surface collection was made which included a gunspall, two stemmed bifaces and a large uniface; numerous quartz flakes were noted on the beach. The site is being altered by marine erosion.

Site No. T 79 NB 2-2 (Cf Df-7)

This site is located on the north shore of the Kouchibouguac River opposite the main campground. The site produced two quartz biface tip fragments. It was characterized by a surface scatter of quartz flakes. The site is undergoing marine erosion and silt deposition. It is also being used to moor small boats with an access road leading onto the site.

Site No. T 79 NB 2-3 (Ce Df-7)

This site is located on the north shore of the Kouchibouguac River on the western side of a point of land formed by an unnamed stream. This stream enters the river from the junction of Highway 117 and the Loggy Croft road. The site is undergoing marine erosion and at one time was the location of a small farm.

Site No. T 79 NB 2-4 (Ce Df-6)

The site is located on a gentle rounded bend on the north shore of the Kouchibouguac River directly opposite a major inlet on the south side of the river. The site appears as a surface scatter of flakes and artifacts on a gravel beach. The site is being altered by marine erosion and deposition.

Site No. T 79 NB 2-5 (Ce Df-12)

The site is located on the peninsula of land forming the eastern end of Kouchibouguac National Park. It is northeast of McGuires Point.

It is characterized by a scatter of flakes and artifacts on the west end of a sand/gravel/pebble crescent shaped beach.

Site No. T 79 NB 2-6

The site is represented by an isolated find of a single basal fragment of a stemmed biface. It was situated at the northern extremity of a crescent shaped beach near Pointe des Allain at the eastern end of Kouchibouguac National Park.

Site No. T 79 NB 2-7 (Ce Df-1)

The site is located at Kellys Beach which is situated on the south bank at the mouth of Kouchibouguac River. The site is represented by historic kaolin pipe stems and aboriginal flakes and artifacts are spread along the beach. If the site extends into the stabilized bank it would be disturbed by ploughing and road construction.

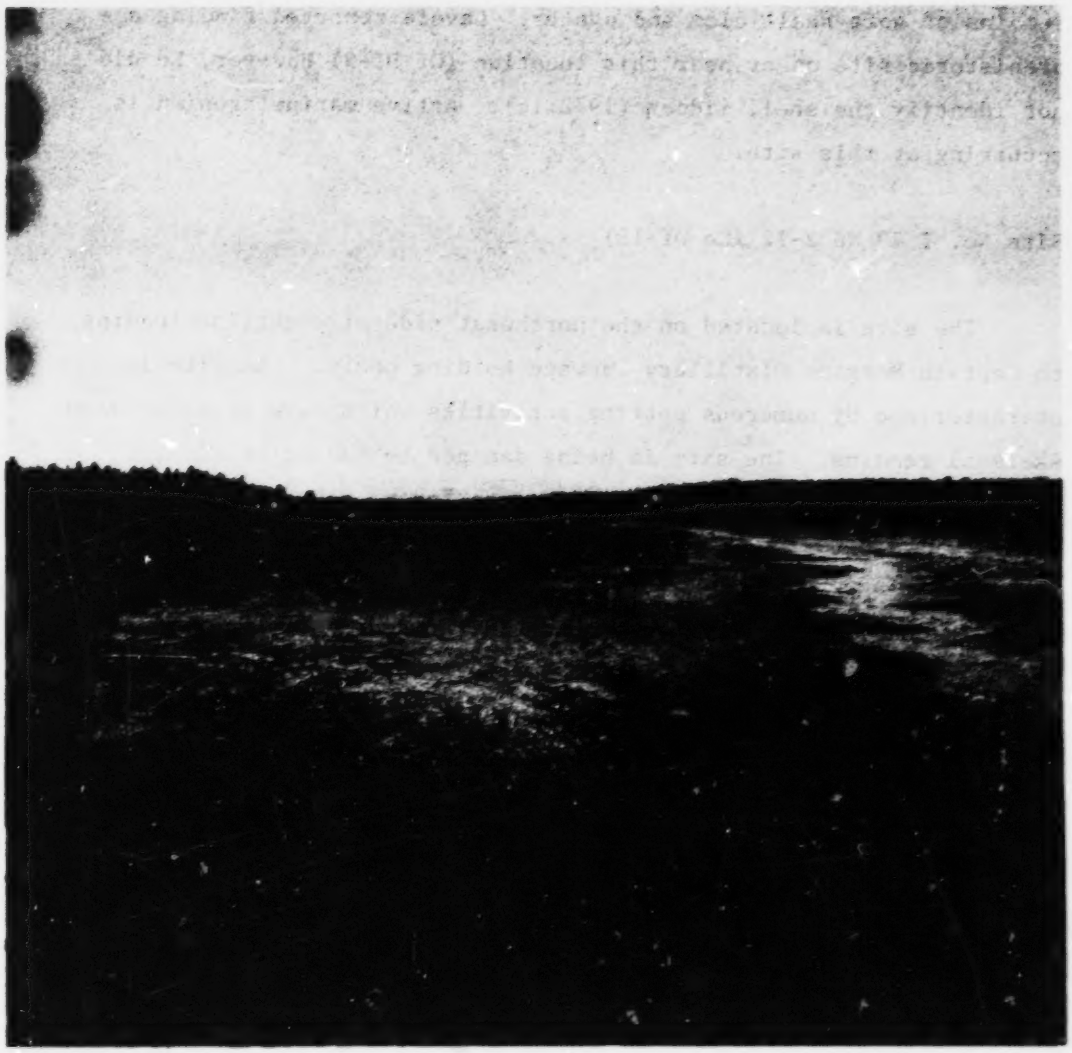
Site No. T 79 NB 2-8 (Ce Df-2)

The site is located on the south side of the mouth of Ruisseau des Major near Callanders Beach. The site was identified by a number of flakes and artifacts scattered on the beach. Marine erosion is altering the site.

Site No. T 79 NB 2-9 (maybe Ce Df-14)
Site No. T 79 NB 2-10 (maybe Ce Df-14)

This sites are located on a small bay on the north side of Riviere St. Louis approximately half way between Pointe a Auguste and Ruisseau des Canards. The two locations are 50 meters apart being separated by a small peninsula. Both locations are represented by a surface scatter of flakes and artifacts. Marine and wind erosion are active at both locations.

Plate X11 Kelly's Beach, Kouchibouguac, National Park, N.B.



Site No. T 79 NB 2-11

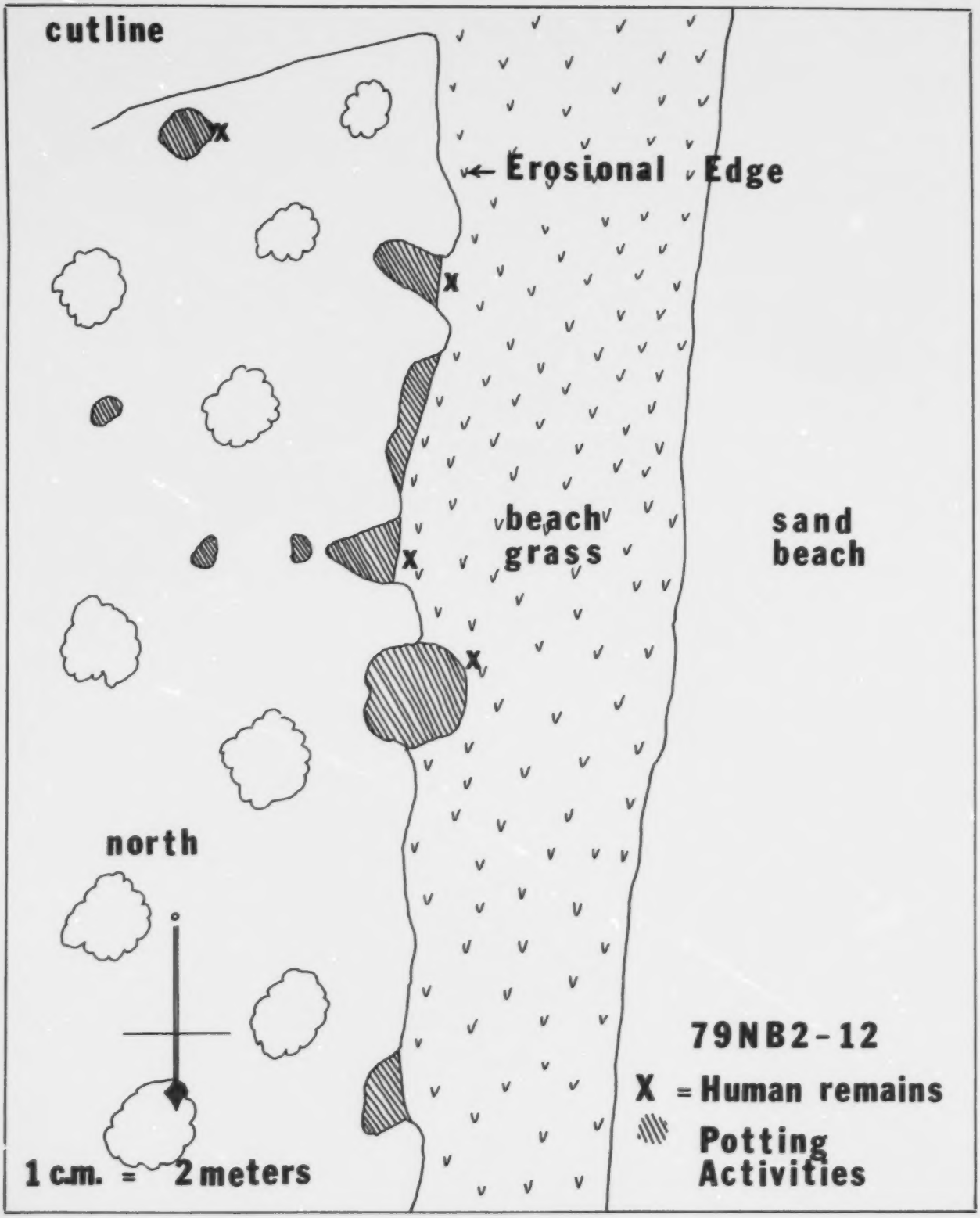
This site is located on the northeast bank of Riviere Fontaine. The location is represented by a historic shell midden containing the remains of soft shell clam and oyster. Lavoie reported finding a prehistoric site on or near this location (Cf Df-3) however, he did not identify the shell midden (1972:16). Active marine erosion is occurring at this site.

Site No. T 79 NB 2-12 (Ce Df-18)

The site is located on the northwest side of a cutline leading to Captain Morgans Distillery sewage holding pools. The site is characterized by numerous potting activities which have exposed human skeletal remains. The site is being damaged by marine erosion. Extensive destruction is occurring due to "grave robbers".

The environmental circumstances in the Kouchibouguac National Park are similar in many regards to the Murray River area of Prince Edward Island. Principle among these is the constant movement of silts on and off the beaches. It is felt that this is the reason for the failure to locate more of Lavoie's sites. The contract conditions imposed on the 1979 survey did not permit any sub-surface testing. This effectively meant that the only resources recorded were those that had been exposed by erosion. These same conditions were restrictive in limiting the evaluation of the resources. None of the sites recorded provided visual evidence of cultural deposits in the erosional banks. Without sub-surface testing there is no possible way of determining if the resource continues into the stable surface. The Kellys Beach site (79 NB 2-7) is an example of this particular problem (Plate XII).

Figure 6 Extent of potting activities at 79NB2-12 Kouchibouguac National Park


cutline
Erosional Edge
beach grass
sand beach
north
1 c.m. = 2 meters
79NB2-12
X = Human remains
Potting Activities

The survey team mapped an area beginning at a large stone fire pit constructed by Parks Canada. From this feature the plotting continued westward for two hundred meters. Within the beach area fifteen artifacts and non-quartz flakes were plotted. However, the scatter of material continued for at least another 400 meters before heavy silt deposits were encountered at the mouth of the Kouchibouguac River. It is highly probable that the material continued under the silts. Without testing, it is impossible to ascertain whether the site exists in the stable shore or indeed whether more than one site exists at this location. It may be that two or more sites are located along this 600 meter stretch of beach and the artifactural material has been mixed by wave action.

Another major difficulty contributing to the problem of locating surface material was the presence of seaweed over many of the beaches. The dried seaweed was comparable to a large woven carpet; in fact, it could be rolled to expose the sand beach underneath. These three factors, no sub-surface testing, accumulation of silts and the carpets of seaweed are felt to be the principle reasons for the failure to locate many of Lavoie's sites. It is felt that the sites exist, it just remains for them to be exposed. The following table outlines the results of the 1979 survey within Kouchibouguac National Park:

Lavoie sites/recorded (Temporary No. in brackets)	Lavoie Sites/area examined site not found	New Sites
Cf Df-7 (2)	Cf Df-3,4,5,6	79 NB 2-1
Ce Df-1 (7)	Ce Df-3,8,9,10,15,16,17	79 NB 2-6
Ce Df-2 (8)	Ce De-1	79 NB 2-9
Ce Df-6 (4)		79 NB 2-10
Ce Df-12 (5)		79 NB 2-11

In addition to the sites listed, four others of Lavoie's sites were not examined. Their Borden designations are Cf Df-1, Cf Df-2, Ce Dg-1 and Ce Dg-2.

The archaeological resources within the confines of Kouchibouguac National Park are extensive and varied. The two surveys of the area have produced a total of twenty-nine resource locations all related to prehistoric occupation. There is a clear need for further work within the park to identify the historic use of the area. One particular site warrants immediate attention: the burial recorded as 79 NB 2-12 (Ce Df-18).

As mentioned, this site is presently being altered by potting activities (Figure 6). The majority of these are occurring along the erosional face which is causing increased natural erosion by both wave and wind action. The "pot hunters" are showing no interest in the physical remains of the people buried at the site. The survey team recorded the remains of at least three individuals scattered along the disturbed edge and in the back dirt produced by the potting activities. The most disturbing aspect of these ongoing ventures is that the digging is now taking place behind the beach. A dramatic example of this destruction caused by the "pot hunters" was a recent hole containing a complete adult skeleton.

It appeared that a shovel had been used to reach the level of the burial which resulted in the skull being damaged. Once the burial was partially uncovered a number of the long bones were pulled from the skeleton and piled in one corner of the hole. The broken skull fragments were placed along the perimeter of the hole. There was no evidence of any grave goods with the individual; it is assumed that these were removed by the "pot hunter".

The survey team photographed the remains as left by the "pot hunter", then returned the bones to what was believed to be their original position. A request was made to the director of the park to have the body covered with plastic and the hole filled.

The following suggestions were submitted to the Regional Office of Parks Canada, Halifax:

(1) The limits of the site should be ascertained as soon as possible to aid a management program. It is believed that this can be accomplished without subsurface testing by using a metal detector and resistivity survey equipment.

(2) The site should be policed either by Park Wardens or the R.C.M.P. This would necessitate that the site be posted either under trespassing laws or by having it declared a protected site.

(3) Negotiations should begin with the Band Council of the Big Cove Reservation and others for the excavation and subsequent reburial of the individuals within the site.

These suggestions were made in recognition that the site was being severely damaged by marine erosion and the activities of "pot hunters". A third potentially damaging factor is the presence of seepage coming from the distillery holding pools located behind the site. The effect that the sludge may have on the skeletal and artifactural remains in the graves is unknown.

Summary

The known archaeological resources of Kouchibouguac National Park are undergoing various forms of natural erosion. A burial site within the park boundaries is being severely damaged by unauthorized digging. This site should receive immediate attention and be given a high priority for excavation. The remaining resources should have sub-surface testing to ascertain their value towards interpreting the prehistory of the area. It is further recommended that a study be conducted on the historic use of the area.

CONCLUSIONS

The most obvious conclusion that can be drawn from the 1979 survey is that coastal sites throughout the Maritimes are being extensively damaged by erosion. It is also apparent that, although erosion remains the most destructive, other agents are also diminishing the value of archaeological resources. The extent and nature of the erosional forces are highly complex and localized, a single kilometre of shoreline will reflect differential erosional activities dependent upon numerous variables. Although in general terms, the shoreline can be said to be submerging at an average rate (15 cm/century, Atlantic shore, 30 cm/century, Bay of Fundy) this had little bearing on the absolute rate of erosion (Simonsen 1979:8). A single storm may remove a metre or more of a site within a few hours, because of this it becomes almost impossible to make predictions as to the future of a particular resource location.

A number of suggestions can be made about the Maritimes, its archaeological resources, and the coastal management programme. First of all, it was obvious from this summer's work that the state of information in the site files, both in the Provinces and in the National Inventory of Prehistoric Sites was found to be lacking. The survey team had difficulties in relocating resource sites from these data bases. This suggested two possible explanations, the first is that the resource no longer exists due to some form of natural or cultural destruction. A number of disappearances can be attributed to these factors. The second and more likely explanation is that the quantity and quality of the recorded locational data was inadequate. It is anticipated that the development of the Maritime Archaeological Resources Inventory forms (M.A.R.I.) which provide a standardized format with a very detailed set of questions to be asked of each resource locational will alleviate this problem. Given this situation and the fact that new resources were encountered suggests a need to relocate sites to check locational

data and provide an update on the status of each resource. These are basic and essential types of information that are necessary before a management programme can be established. Considerations must be given to redoing the entire Maritime site inventory files.

Although the survey's efforts were aimed at a long range programme it became obvious that immediate situations will be encountered. The exposed burials found in New Brunswick were just such a case, as was the badly erroded oyster midden in Prince Edward Island. There must be some consideration given to these immediate needs whether its a part of the project or the acknowledged responsibility of the Province involved.

It also became obvious that testing of sites is a necessity. Some maritime sites, such as shell middens, have an easily definiable limit, whereas others do not. The exposed coast of eastern New Brunswick and to a certain extent Prince Edward Island do not lend themselves to well defined occupation units. Rather these sites are scattered with mainly beach finds as an indication of former occupation. There is no way to provide an adequate evaluation of these sites unless sub-surface testing for deposits is carried out back of the beach areas.

In fact, this brings forth a major point in defining the terms of reference for future surveys. It is suggested that the basic tenor of such surveys should be quality of information and completeness rather than a cursory examination of the coast. In this light, and from the experience of this summer, it is suggested that areas slated for survey be walked with attention paid to areas back of the shoreline. In so doing it is anticipated that sites in situations similar to Hawk's Nest site on Minister's Island will be encountered. The desire for completeness may result in less area covered per day but with more detailed results.

It was noted, however, from the north end of Mahone Bay, that not all of the coast has archaeological resources. Whereas there is no detailed understanding of coastal use during the different episodes of Maritime prehistory it is impossible to totally ignore seemingly uninhabitable stretches of the coast. However, in light of current trends in priorizing or of practicing a form of triage on our coastal sites, large sections of coastline should be down played in favour of those which are known to have sites. It is recommended that areas such as Passamaquoddy Bay and Nova Scotia's Southern Shore be given priority for future consideration. It is felt that the limited funding that is committed to archaeology in the Maritimes would be best spend in such area.

Other observations can be made from this summer's work. The rate of one metre per year of land loss is not uncommon around Maritime coastlines. Much of this loss may be sporadic in terms of the effects of major storms, as mentioned. It will be very difficult to protect such sites against large storms. Only time will tell if the efforts of the New Brunswick government were successful with the sea wall constructed to protect the Minister's Island site. The question of protection must be considered; however, a greater issue is the identification and classification of resources to be protected. The neglect of Maritime archaeological resources over the years has resulted in a very poor understanding of coastal prehistory. The basic management question of which of the sites are important can not be answered with the data at hand.

In addition to natural causes, it was also apparent that numerous sites have been lost through coastal strip development. Roads, cottages, recreational development etc. have all taken their toll of our archaeological heritage in the coastal zone that is becoming developed as it is eroding. The activities of "pot hunters" remains an ongoing problem. Continued neglect of these resources will diminish their value to such an extent that the future of archaeological inquiry in the Maritimes will be impaired.

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APPENDIX A

Maritime Archaeological Resource Inventory

Recording devices and guide for their use

Maritime Archaeological Resource Inventory

Guide to the use of the M.A.R.I. recording format

Introduction

The sample forms and instructions for their use within this guide are the direct result of recommendations presented to the Maritime Committee on Archaeological Cooperation (M.C.A.C.), a formal archaeological resource management group under the auspices of the Council of Maritime Premiers. These recommendations are included as part of a management study which was published in two reports (Simonsen, 1978, 1979).

These reports contained an overview of the state of archaeological research and resource management in the Maritime Provinces and identified the greatest threat to the resource as being shoreline erosion. The nature and degree of this threat is well illustrated within these reports and need not be reiterated.

The Maritime Archaeological Resource Inventory (M.A.R.I.) is a standardized recording format designed for the Maritime Provinces. The fact that archaeological resources are non-renewable and in danger of being lost necessitates the focus of the documentation being toward resource management. However, the format has design features that are of use in some areas of problem oriented research.

The M.A.R.I. program was designed in two phases. Initially, archaeological site recording forms presently in use within Canada and the United States were examined. The British Columbia form appeared most suited to the needs of the Maritime Provinces. Therefore, various organization and content aspects of this form were included in the M.A.R.I. program.

It was also decided at this time to adopt Simonsen's (1979: 49) general data category suggestions. Thus observable, inferential, and ancillary data categories were recognized and explicitly defined within the M.A.R.I. program.

The second phase in the development of the M.A.R.I. program necessitated testing a proto-type format in a selected area in each of the Maritime Provinces. This survey (Davis and Christianson 1979) under the auspices of the Council of Maritime Premiers, resulted in alterations to the M.A.R.I. format as a range of archaeological sites had to be recorded.

The final M.A.R.I. program incorporates alterations outlined above and suggestions made by various archaeologists working in the Maritime Provinces region. Of particular importance was the advisory role played by the Maritime Committee on Archaeological Cooperation, a sub-committee of the Council of Maritime Premiers.

This manual follows the procedural steps inherent in the M.A.R.I. program itself. That is, three separate forms and directions for their use are included within the guide. While particular individuals may only be interested in one aspect of M.A.R.I., the manual allows a composite view of the entire program.

Form 1 Site Survey Ancillary Data is completed by the office staff of the Provincial Archaeological authority in each province. Information contained in Form 1 cannot adequately be collected by a field survey team due to time and information access restraints.

Form 2 Site Survey is the recording device completed in the field by an archaeological survey team. Observational and judgemental data are required and clearly demarcated on the form. Location, descriptive (including maps) and cultural information is requested in Form 2.

Form 3 Systematic Collection is required only when sub-surface testing or extensive surface collection is carried out on a site.

When using this guide, it is useful to consider M.A.R.I. as a resource management tool. The kinds of data requested on the three forms are all important for reaching appropriate archaeological management decisions in the Maritime Provinces.

MARITIME ARCHAEOLOGICAL RESOURCE INVENTORY

Form 1: Site survey ancillary data office use only

1. Site No. _____ 2. Province _____ 3. County _____

4. Administration _____

5. Site Name _____

6. Previous designations _____

7. Map Name(s) _____

8. No(s). _____ 9. Edition(s) _____

10. Latitude ____° ____' ____" 11. Longitude ____° ____' ____"

12. UTM _____ 13. Air Photo Ref. _____ 14. Exposure _____

15. Elevation a)_____ b)_____

16. Water features a) _____ b) _____

17. Owner/Tenant _____

18. Address _____

_____ 19. Phone _____

20. Date contacted _____ 21.Attitude towards site _____

_____

22. Known finds and location _____

_____

_____

_____

23. Absolute date(s) _____

24. References _____

_____

25. Priority _____

26. Permit/Licence No. _____ 27. Date Issued _____

28. Photo/field not records _____

_____

1. Site No. _____

MARITIME ARCHAEOLOGICAL RESOURCE INVENTORY (M.A.R.I.)

Form 1, Site Survey, Ancillary Data

Instructions:

1. Site No. This entry if assigned by the office of the provincial archaeological authority and represents the Borden classification system designation. The designation is also placed in the lower right hand corner of each page.

2. Province. Standard abbreviations for the Maritime Provinces (i.e. N.B. - New Brunswick, N.S. - Nova Scotia, P.E.I. - Prince Edward Island) are used on M.A.R.I. forms.

3. County. The complete name for the county is entered.

4. Administration. This entry refers to the administrative jurisdiction in which the site is located. Use one of the following designations: a) Federal (e.g. game reserve), b) Provincial (e.g. park), c) Municipal (e.g. Town of Bathurst), d) Corporate (e.g. Scott Paper), e) Private (e.g. individual owning a farm).

5. Site Name. Suggestions for site names may be made by the field survey team at the beginning of the Remarks section of Form 2. A site name may reflect land ownership or some prominent natural feature.

   Care. should be taken in assigning common names to sites. For example, beware of duplication or near duplication as in the case of Cow Point, Cow Path and Cow Head.

6. Previous Designations. All former designations for the site should be stated. Both names and numerical (e.g. T-number) are included in the category.

7. Map Name(s). Enter the full name of the N.T.S. 1:50,000 map that includes the site location. If a coastal site is being recorded, list the name of the pertinent nautical chart.

8. No(s). Enter the exact numbers of listed maps.

9. Edition. Record the edition of the map series used.

   Example: Map Name Richibucto No. 21 - 1/10

   Edition 2

10. Latitude. The location of the site must be calculated to the nearest second by using the appropriate mylar scale given on the N.T.S. map being used. Locational information is derived from the Descriptive Location portion of the appropriate M.A.R.I. Form . An example of the calculation technique is given in Appendix A.

11. Longitude. Follow instructions in entry 10.

12. U.T.M. When present on a N.T.S. map, the Universial Transverse Mercator (U.T.M.) designation must be given. When the U.T.M. grid appears on a map, the method of calculation appears on the border. Note that eastings are read first, then northings. There are 2 cm. between each grid line (1 km. on the map) so a metric ruler can be used to accurately calculate the 3rd and 6th digits of the grid reference. An example is given in Appendix A.

13. Air Photo Reference. The appropriate aerial photograph number must be entered along with any other information such as scale and date.

14. Exposure. Indicate the direction of the prevailing winds in the site area. This information is included in a map format in Appendix B.

15. Elevation. a) Record the nearest mean sea level contour to the site as shown on the N.T.S. map.

b) The elevation recorded in this space refers to an appropriate local topographic feature. If possible, this feature should be a local water system such as a lake, river, or bay (e.g. 2 meters above high tide mark).

16. Water Features. a) Refers to the minor, or nearest, water body. Examples are streams, rivers, etc. List in the following order: name, distance from site, and direction (e.g. Gaspereau Creek, 172 meters, east).

b) A major water feature should be entered. That is, the nearest body of water to the site should be stated in the same manner as 15(a). An example is: Richibucto Harbour, 1.9 kilometers, north.

17. Owner/Tenant. Provide names of individuals, companies, or government agencies owning, renting, or leasing the property on which the site is located.

18. Address. Address(es) for those persons, agencies, or companies listed in section 16 are to be given.

19. Phone. Current phone numbers as in section 17.

20. Date Contacted. Every effort should be made to inform the owner/tenant of the existence of a site on their property. A full explanation of the existing cultural resource should be provided.

21. Attitude towards site. The interviewer should endeavor to solicit the attitude the owner/tenant has towards the existing archaeological site. This information includes willingness on the part of the owner/tenant to allow future testing or excavation and any future plans for the property on which the site is located.

22. Known finds and Locations. This entry is intended for the reporting of known collections from a site. A code designation for each known collection should be entered.

23. Absolute Date(s). All absolute dates from the site are to be included complete with published references.

24. Reference(s). Reference any document, manuscript, or publications that pertain to the site. Such items as site reports, field notes, notes from amateurs and observers notes from collector's interview, should be included. Any reference should include author's surname and date of publication or writing. The properly reference of author's name, date, title, etc. is to be kept in an appropriate filing system.

25. Priority. Using information obtained from the M.A.R.I. forms, the Provincial Archaeological Authority will assign a priority rating for each site.

26. Permit/Licence No. The recording of the permit/licence number allows for the identification of the survey project responsible for reporting the site.

27. Date Issued. State the exact date of permit/licence issue.

28. Photo/Field note record. This entry pertains to the final reference code for all photographs and field notes concerning the site. This code is for the storage and retrival of these items.

MARITIME ARCAHEOLOGICAL RESOURCE

INVENTORY

Form 2: Site Survey

1. Site No. T _____

2. Descriptive Location _____

3. Access Location _____

4. General Site Description _____

5. Site Geology _____

6. Site Vegetation _____

_____

_____

_____

_____

7. Site dimensions a) observed L. _____ W. _____

b) estimated L. _____ W. _____

c) total area (hectares) observed _____ estimated _____

8. Orientaiton of long axis _____ relationship to water _____ relationship to erosional face _____

_____

9. Size and nature of exposed deposit _____

_____

_____

_____

_____

10. Relative age of known cultural deposits a) Palaeo-Indian _____

b) aceramic _____ c) ceramic _____

d) historic _____ e) unknown _____

11. Method of age determination _____

_____

_____

_____

12. Site type _____

_____

13. Destructive agent(s) a) cultural _____

_____

_____

_____

b) natural _____

14. Coastal type _____

15. Man-made coastal structures _____

16. Site condition a) present _____

b) future _____

17. Potential damage rating 1. 2. 3. 4. 5.

18. Means of assessment _____

19. Systematic collection form completed yes _____ no _____

20. a) informant's name _____

b) address _____

_____ c) phone _____

21. a) recorded by _____ b) date _____

22. permit/license _____

23. Photo record _____

24. Suggested site name _____

25. Remarks _____

EXTENT OF SITE

BUILDING

FOUNDATION

ROAD

TRAIL

RAILWAY

FENCE

RIVER/CREEK

STEEP RISE

ADDITIONAL LEGEND

1:50,000 MAP NO. _____

TRUE ☐ MAGNETIC ☐

DATE _____

SCALE: 1 CM. = _____ M.

0

EXTENT OF SITE —·—·—·—·

SAND BEACH

GRAVEL BEACH

BOULDERS

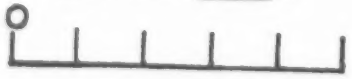
BEDROCK BR

WATER

DATE

TIME

SCALE 1cm = ____ M.



ADDITIONAL LEGEND

Form 2, Site Survey, Observable Data

Instructions:

1. Site No. T. This entry is a temporary field survey number assigned to each site recorded by the project. The Provincial Archaeological authority will stamp each form with a numerical/alphabetical code which is comprised of the year of the survey, the abbreviation of the province in which the survey takes place and the permit/licence number of the project. The survey team simply assigns a sequential number to each site that is recorded. Example: 80 P.E.I. 14-6.

   NOTE: The entry, Site No. _____, found in the lower right hand margin is not to be filled out by the survey team. This space is reserved for the permanent "Borden classification system designation" which is assigned by the provincial authority.

2. Descriptive Location. The location of each site must be detailed and precise. This category has to contain sufficient information to allow for accurate plotting of the site on a map and aerial photograph. Begin with a general area description and proceed to increasingly more specific information. The description should relate to geographical references and features that appear on the area topographic map.

3. Access Location. The access description must allow the relocation of a site by subsequent field personnel. This entry compliments the descriptive location and should be equally detailed and precise. References can be made to features not included on topographic maps.

   NOTE: In both entry 2 and 3, all measurements must be accurate and specific; they are not to be estimated. Use such devices as vehicle odometers, tapes or survey chains, or pace charts. The means of determining distance should be noted within the description immediately following the notation, for example 0.2k(odometer). All directions must be taken with a compass.

4. Site Description a) general. Describe any apparent evidence of cultural activities on the site.

5. Site Geology. Indicate whether the deposit under a site is crystalline, sedimentary, or loosely consolidated. Also, indicate the name of the geological deposit as contained in the appropriate Geological Survey of Canada report.

6. Site Vegetation. Describe the predominant vegetation species on the site beginning with most abundant species. Note important departures from the vegetation pattern surrounding the site. Native Trees of Canada by R. C. Hosie (1975) is a useful reference guide for identifying trees.

7. Site Dimensions. The required site dimensions are of two kinds - observed and estimated. For each of the length, width and area categories, accurately measure the visible boundaries of the site.

   Estimated figures are based on the field worker's prior experience and are judgemental decisions. For example, if a site is located on a terrace that has been truncated by road construction, it is reasonable to assume that portions of the site were covered, if evidence exists on both sides of the road.

   Observed dimensions can be obtained by shovel testing to locate the limits of the cultural deposit.

8. a) Orientation of long axis. This entry requires the compass orientation of the long axis. Specify whether true north or magnetic north is used.

   b) Relationship to water. Describe the orientation of the long axis to an adjacent body of water if present.

   c) Relationship to erosional face. List the relationship of the long axis to an erosional exposure if one exists. For example, identify whether the erosion is parallel or at right angles to the long axis of the site.

9. Size and nature of exposed deposit. If destructive agents have exposed the cultural matrix of a site, the exposure should be accurately measured. Provide length and depth measurements for vertical exposures and length and width for exposed horizontal deposits. All dimensions are maximum.

   Describe the constituent elements of the exposed deposit.

10. Relative age of known cultural deposit. The four chronological periods listed are general indicators of the relative age of sites. The following definitions give general characteristics for each period.

    a) Paleo-Indian. This period is characterized by a series of fluted projectile points as well as a variety of lanceolate plano projectile points. The Debert, Nova Scotia site is an example of a paleo-Indian site.

    b) Aceramic. Generally this period is defined by a lack of ceramics and the presence of "archaic" projective points. However, caution should be exercised before designating a site as aceramic due to the rapid perisability of exposed ceramics.

    c) Ceramic. The diagnostic artifact class for this period is native ceramics.

    d) Historic. This period has sites that are representative of the former activities of native North Americans and Euro-Canadians. They are characterized by the presence of historic period artifacts made from glass, metal and other non-aboriginal raw materials.

    e) Unknown. Check this category. If a site contains no diagnostic artifacts or related evidence for the assignment of a relative age.

11. Method of age determination. Use this entry to state reasons and evidence for assigning the relative age designation.

12. Site type. This entry allows a general morphological classification of archaeological sites. It is necessary to use the following terms either singly or in combination. If a particular site cannot be described using these terms, a new descriptive term may be added. In such cases the term must be clearly defined. Do not speculate by using functional categories such as house pits; confine such information to the remarks section.

    a) Shell middens. These are refuse deposits featuring the shells of various mollusc species, artifacts and cultural features associated with past human activity. Example: Teacher's Cove, N.B. (Davis 1978).

    b) Burial. This site type is characterized by evidence of the internment of human remains. Example: Augustine Mound, N.B. (Turnbull 1976).

    c) Circular depressions. The surface of a site may show that excavation activities were carried out by the former inhabitants. Example. Bocabec (Matthews 1884).

    d) Circular arrangements. Evidence of circular constructions may exist above ground without an associated depression.

    e) Straight sided depressions. The surface of a site may show that an excavation was carried out by the former inhabitants which resulted in the creation of straight sides for the depression. Example: Belle Isle (Preston 1972).

    f) Straight sided arrangements. The site may contain indications of above ground constructions characterized by straight sides meeting to form angled corners.

    g) Linear depressions. Certain sub-surface features may form long, narrow depressions.

    h) Linear arrangements. A site may exhibit features above ground that are long and narrow. Example: Acadian dykes.

    i) Pictographs. These are painted designs on an immovable object such as a rock outcrop.

    j) Petroglyphs. These are incised designs on an immovable object such as a rock outcrop. Example: Kedjmikujik.

k) General activity. This category is a broad descriptive designation for sites that lack sufficient data to allow further description.

l) Isolated finds. This type of site represents the location of a single artifact or several items without further associations.

13. Destructive Agents.

a) cultural. This entry should note any man-made activity that has destroyed parts of the site. The nature and the extent of the destruction should be noted. These activities include construction projects, plowing, road building, logging operations, potting, recreational use, etc.

b) natural. Natural destructive agents include phenomena as diverse as stream erosion and tree falls. The most destructive natural agent affecting Maritime Provinces coastal sites is marine erosion. Describe the extent and nature of any natural agents affecting the site.

14. Coastal type. Indicate which of the following attributes apply:

a) high cliff or low relief

b) well consolidated shore (rock) or loosely consolidated (gravel)

c) narrow or wide beach

d) gentle or steep gradient

e) gravel, sand or gravel/boulder beach composition

15. Man-made coastal structures. Note the presence and location of any man-made structures in the vicinity of the site. Examples are jetties, wharfs and fish weirs. Also note the removal by mechanical means of beach material (for example, the artificial cutting or passages through a natural coastal barrier).

16. Site condition

a) present. A detailed and specific statement is required describing the present condition of the site. This discussion should include an assessment of past and present destructive activities.

b) future. This entry is a subjective statement outline recognized future threats to the site. These threats may be of a natural or cultural nature.

17. Potential damage rating. This entry is an estimate of the time remaining before a site is seriously damaged by natural or cultural agents. Serious damage is arbitrarily defined as destruction of 25% of the present site area. Use the following code in your evaluation:

1. less than 2 years
2. 2-5 years
3. 5-10 years
4. no forseeable threat
5. cannot be estimated.

18. Means of assessment. This entry requires a statement outlining your reasons for assigning the potential damage rating. For example, if the site faces immediate destruction and the cause is construction, a statement to this effect should be entered.

19. Systematic collection form completed yes _____ no ____. Check the appropriate response if a M.A.R.I. form 3 have been completed. This form is necessary when a site is test excavated or extensively surface collected.

20. Informant's name. Include the name of any person contacted who provided information about the site.

b) address. The informant's current address

c) phone. The informant's phone number

21. a) recorded by. The names of the survey crew are entered here.
    b) date. Enter the date of recording the site.

22. Permit/Licence. List the full designation of the archaeological permit or licence under which the survey pertains.

23. Photo record. List and describe all photographs of the site that accompany this form. It is necessary to include a minimum of one black-and-white print showing the site and its surroundings.

24. Suggested site name. Suggest an appropriate name for the site based on property ownership, location, or a unique natural occurrence. However, this name may be changed if it is the same or similar to a previously named site.

25. Remarks. Use this space for recording information about the site not covered by other categories within the form. This section may be used for personal observations about the site which the survey team feels are appropriate.

Map Instructions

The sketch of the site must be done carefully and with a high degree of accuracy. This is essential as it will become a part of the permanent record of the site.

1. The top of the page represents north, include the direction of magnetic north on the map in a location that does not obscure other information.
2. Use the largest possible scale that allows for recording all on-site features. These features must be recorded to precise dimensions.
3. Where possible, use standard map symbols as found on the 1:50,000 topographic maps. When additional symbols are used these must be defined on the map in the box provided.
4. The map can be drafted initially on graph paper to allow for accurate recording then transfered to the recording form. Keep in mind that the final form must be clear enough for mechanical duplication, therefore, shading and color coding are not acceptable.
5. The descriptive location and access location will be augmented with the inclusion of the appropriate xerox portion of the topographic map. This will be added to the form by the office of the provincial archaeology authority.

MARITIME ARCHAEOLOGICAL RESOURCE
INVENTORY

Form 3: Systematic Collection

1. Site No. T-

2. Methodology

3. Depth and Natura of Exposed Deposit

4. Collection Location

5. a) Recorded by b) Date

6. a) Permit/license no. b) Date

7. Photo Record

Site No. _____

Form 3, Systematic Collection

Instructions:

1. Site No. T. This entry is a temporary field survey number assigned to each site recorded by the project. The Provincial Archaeological authority will stamp each form with a numerical/alphabetical code which is comprised of the year of the survey, the abbreviation of the province in which the survey takes place and the permit/ licence number of the project. The survey team simply assigns a sequential number to Example: 80 P.E.I. 14-6.

   Note: The entry, Site No. ____, found in the lower right hand margin is not to be filled out by the survey team. This space is reserved for the permanent "Borden Classification system designation" which is assigned by the provincial authority.

2. Methodology. Give a brief discription of the technique used in the collection of specimens. A number of suggestions are given in this guide, however any technique which accurately records the location of artifacts is acceptable.

3. Depth and Nature of Exposed Deposit. Describe the constituent elements of the cultural matrix of the site.

4. Collection location. Provide a statement as to the final deposition of the specimens collected.

5. a) Recorded by. The names of the crew are entered here.
   b) Date. Enter the date the collection was made.

6. a) Permit/licence No. List the full designation of the archaeological permit or licence under which the collection was made.
   b) Date. Enter the date of the Permit/Licence.

7. Photo Record. List the number of any photographs which pertain to this form.

Map. Sketch a map showing the location of and datum points used within the collection process. The map should maintain a high degree of accuracy as it will become a permanent record of the site.

Suggestions for the Systematic Collection of Artifacts

The recovery or collection of archaeological materials such as ceramic fragments, detritus, faunal remains, soil and dating samples must be done in a systematic fashion with supporting documentation. In many instances, sites have pre-existing natural or man-made exposures to allow for the collection of artifacts as well as documenting the depth and nature of the cultural deposit. However, it may be desirable to check the sub-surface characteristics of a site through restricted exploratory excavation.

A. Surface collection

1. The initial check for exposed cultural materials can be accomplished quickly by walking over the site following a set pattern. If large areas are exposed, a series of target points can be set at each end of the exposure. These function to maintain patterned movement by traversing the collection area from target point to target point. As each cultural item is observed it can be marked simply by placing a survey pin (stick) next to the object. Clusters of objects or exposed features can be marked with larger sticks.
2. Once the area has received an initial survey, an estimate of the exposed materials can be made by viewing the quantity of markers. A decision must now be made for the best method of recording the provenience of the cultural materials; the following are suggestions for relative ease and rapid recording of surface items.

    a) Base-line triangulation. This is accomplished by extending a metric tape across the exposure with reference posts being placed at regular intervals (1 to 3 metres). These posts must be secure. Artifact proviences are found by stretching tapes from any two posts until they intercept at the artifact. It is essential to record the designation of the two posts used, the distance of both tapes as well as the direction from the base line.

b) Base-line Grid: This procedure is similar to the first in that a base-line is staked through the site. A right-angle grid can be laid across the exposure on either side of the base-line by using the basic 3-4-5 formula. Once a parallel line has been established with the base-line, the grid can be expanded to any size.

Note: Both procedure a & b assume that the exposure is relatively flat. If a slope or irregular contours exist, then the procedures may have to include the use of a line hand-level and plump bob to maintain a degree of accuracy.

Vertical Exposure: One of the most important exposures to be found at a site is when a natural or man-made disturbance has revealed the sub-surface nature of the cultural deposit. A great deal of information can be recovered from such situations, including the relative age of artifacts and the stratigraphic profile of the cultural matrix.

Vertical Grid: This procedure involves the establishment of a grid-line along the top of the exposed face with pins at regular intervals (1 metre for complex stratigraphic profiles). After cleaning the profile stretch a strong twine across the section making sure it is level (line level) and secure. This performs the same functions as a base-line. All measurements are taken from the base-line. A stratigraphic profile should be the first priority (illustration). Note: In situations where a great many items are exposed or a complex stratigraphic profile is encountered, it may be wise to sample the exposure e.g. base-line grid system, collect only from a random selected number of units, e.g. vertical exposure, record only a section of the total profile.